PART 3

- Volume VI
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- Volume IX

VOLUME VI OF IX

Appendices J to O-1

Draft Environmental Impact Statement

MĀKENA MAUKA

(TMK Nos. (2)2-1-005:108, (2)2-1-006:036 and 057, (2)2-1-007:068, 092 and 093, (2)2-1-008:078, 079, 081, and 090, and (2)2-1-031:036(por.))

Prepared for:
AREG AC Makena Propco LLC

Accepting Authority:

Maui Planning Commission

December 2025

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VOLUME VI OF IX

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MĀKENA MAUKA:
AGRICULTURAL IMPACT ASSESSMENT



PREPARED FOR:

AREG AC Makena Propco LLC

PREPARED BY:

Plasch Econ Pacific LLC

September 2025

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ACRONYMS AND ABBREVIATIONS

ALISH	Agricultural Lands of Importance to the State of Hawai‘i
ALUM	Agricultural Land Use Maps
Applicant	AREG AC Makena Propco LLC which does business as Mākena Golf & Beach Club Owners
CIZ	Change of Zoning
County	County of Maui
CPA	Community Plan Amendment
DBA	District Boundary Amendment
diversified agriculture	crops other than sugarcane or pineapple
DOH	Hawai‘i Department of Health
Farm	Naulu Farm
gpd	gallons per day
HRS	Hawai‘i Revised Statutes
IAL	Important Agricultural Lands
KMCP	Kīhei-Mākena Community Plan
LSB	Land Study Bureau
Mākena Resort	a master planned residential community within the Mākena area of South Maui
mgd	million gallons per day
MIP	Maui Island Plan
mph	Miles per Hour
MXC	Makena loam stony complex, 3 to 15 percent slopes
NRCS	Natural Resources Conservation Service
O&M	operations and maintenance
OAD	Oanapuka very stony silt loam, 7 to 25 percent slopes
OED	Oanapuka extremely stony silt loam, 7 to 25 percent slopes
PEP	Plasch Econ Pacific LLC
plantation agriculture	sugarcane and pineapple
Project	Mākena Mauka
Project’s Ag lands	Project lands that that are within the State Agricultural District
Ranch	Ulupalakua Ranch
rVS	Very stony land
SLUC	State Land Use Commission
SMA	Special Management Area
State	State of Hawai‘i

TMK	Tax Map Key
U.S.	United States
UGB	Urban Growth Boundary
UH	University of Hawai‘i

EXECUTIVE SUMMARY

1. PROPOSED DEVELOPMENT

AREG AC Makena Propco LLC proposes the development of Mākena Mauka (the "**Project**"), a low-density master planned residential community within the Makena area of South Maui. The Project site encompasses about 1,043.71 acres, including the existing Mākena North Golf Course, the Mākena South Golf Course, and 18 currently vacant development "parcels" located around the golf courses. About 473 acres are planned for residential development.

The Project will provide 652 housing units, comprising 543 market-priced homes and 109 affordable homes. Approximately 135,000 sq. ft. of support buildings will be developed, including space for golf operations and maintenance, restaurants, staff offices, etc. The community will feature hiking trails; walking, bicycling, and golf cart paths for connectivity; beach access and parking for the public; and areas reserved for conservation/open space.

The Project is within an area that has largely been planned for such uses for decades.

2. LAND CLASSIFICATIONS

Much of the Project area has the necessary State and County land-use designations to support the proposed Project. However, changes in designations will be needed for the proposed rural-residential community in the most mauka portion of the Project area near the upper reaches of the 18-hole Mākena North Golf Course. Anticipated changes include: (1) a District Boundary Amendment (**DBA**) by the State Land Use Commission (**SLUC**) to change most of the lands used for the North Golf Course from the current Agricultural designation to Rural, (2) a Community Plan Amendment (**CPA**) (as may be required), and (3) a Change of Zoning (**CIZ**).

3. AGRICULTURAL CONDITIONS

About 510 acres (52%) of the Project site are within the State's Agricultural District (the **Project's Ag lands**). These lands are unsuitable for crop farming due to stony, low-quality soils and lack of water for irrigating crops. Soil ratings are low: NRCS ratings of VIs or VIIs (severe limitations or very severe limitations that make them unsuited to cultivation); ALISH rating of Not Classified, and an LSB rating of E which is lowest productivity rating. Depending on rainfall, about 267 acres are suitable for low-quality pastures for seasonally grazing a small number of cattle.

4. PAST, CURRENT AND SURROUNDING LAND USES

a. Past Agricultural Use

Before cattle were introduced to Maui and extending into the 1800s, the upland forest zone was much lower than it is today, and the Mākena region received more rainfall. This rainfall was sufficient to allow the seasonal cultivation of sweet potato (ʻuala) in small gardens within Mākena. About a month before the rainy season began, soil for planting was carried in lauhala baskets from the mountains to Mākena.

For most of the past century, and possibly longer, nearly all of the Project site was used for grazing cattle. In 1973, ʻUlupalakua Ranch (the **Ranch**) sold the property to The Seibu Group of Japan. Starting in the early 1980s, the area used for grazing cattle was reduced to allow development of Mākena Resort.

b. Current Uses of the Project's Ag Lands

At the northern end of the Project site, ʻUlupalakua Ranch is allowed to graze cattle on about 88 acres of the Project's Ag lands. The grazing is infrequent (a few weeks per year) by a small number of cattle.

Naulu Farm is a non-commercial 2-acre farm located adjacent to the clubhouse of the Mākena North Golf Course. Operations include an animal farm, a greenhouse dedicated to cultivating native species, a vegetable and fruit garden, an aquaponics system, and educational programs. Edibles are supplied to the restaurant. The greenhouse propagates native species for replanting areas within the Project site. The Farm does not generate revenues through sales; instead, its operations are subsidized by a portion of the homeowner's association fees.

About 36 acres of the Project's Ag lands are landscaped for the Mākena North Golf Course. The remaining Ag lands consists of dry forest dominated by kiawe trees, sourgrass, koa haole and wild basil.

c. Surrounding Land Uses

Lands mauka of the Project site include (1) the 750-acre U-1 Agricultural Subdivision, of which about 700 acres will remain available to ʻUlupalakua Ranch for grazing cattle and occasionally sheep; and (2) other lands used by the Ranch for grazing. To the north are the Wailea Gold Golf Course, Wailea Resort, and existing and planned resort-residential projects. Makai are resort facilities, homes, the historic Keawalaʻi Church, beach parks, and undeveloped land. To the south are the Mākena State Park (Big Beach or Oneloa), various single-family homes and, farther south, ʻĀhihi-Kīnaʻu Natural Preserve Area (La Perouse).

Consistent with the absence of high-quality soils in Mākena and nearby communities, the region lacks commercial farming activities and does not host a farming community.

While the region does support limited and intermittent cattle and sheep grazing, most ranching activities are concentrated mauka on lands of ʻUlupalakua Ranch.

5. IMPACTS ON AGRICULTURE

The Project's 510 acres of Ag land is about 0.21% of the 242,723 acres in the Agricultural District on Maui Island, and 0% of the 72,300 acres of high-quality farmland.

a. Impacts on Grazing Operations

On-Site Grazing

The Project will end ʻUlupalakua Ranch's use of 88 acres of the Project Ag land for grazing cattle. Grazing on this land occurs sporadically over a few weeks each year by a small number of cattle. The low grazing intensity is attributed to the low forage growth, which is consistent with the low-quality soils and low rainfall.

ʻUlupalakua Ranch grazes about 2,300 brood cows on over 18,000 acres of land on the southern slopes of Haleakalā. The higher-quality pastures are at higher elevations where rainfall exceeds 30 inches per year.

The reduction in pasture acreage and beef production attributable to the loss of 88 acres of low-quality pasture (less than 0.5% of the Ranch's grazing lands) will be negligible. No loss in Ranch employment will occur due to the Project.

Nearby Grazing

Cattle and sheep operations by ʻUlupalakua Ranch on lands mauka of the Project site will not be impacted by Project construction nor operations at full development. Numerous residential and resort projects throughout Hawaiʻi have demonstrated that low-intensity grazing is compatible with such projects, resulting in minimal or no impacts on grazing operations. Furthermore, low-intensity grazing operations are desirable near residential and resort projects because the grazing of grasses reduces the fire hazard to homes and buildings.

b. Impacts on Crop Farming

Currently, no commercial crops are grown within or near the Project site, and there are no known plans to establish commercial farms nearby. In addition, development of commercial farms in the vicinity is unlikely due to poor soils and water scarcity. Consequently, Project development and operations will not impact current or anticipated commercial crop farms.

Regarding the non-commercial Naulu Farm, plans are to expand the greenhouse operations to supply native species for replanting various areas within the Project and for maintaining preservation areas. Employment is projected to increase from the current five workers to 12 workers in a few years. In addition, educational programs will be increased.

c. Impacts on the Growth of Crop Farming

The Project will result in redistricting about 510 acres from the State Agricultural District to the Rural District. However, this redistricting will have no impact on the growth of commercial crop farming on Maui since the stony, low-quality soils and lack of irrigation water render this land unsuitable for cultivating commercial crops.

d. Mitigating Measures

No mitigation measures are warranted in view of the findings of: (1) negligible impacts on cattle-grazing operations, (2) no impacts on existing or anticipated commercial crop-farming operations, (3) a beneficial expansion of the non-commercial Naulu Farm, and (4) no impact on the growth of commercial crop farming.

6. OFFSETTING BENEFITS

The redistricting of about 510 acres of low-quality agricultural land from the Agricultural District to the Rural District will be offset by the following benefits of the Project:

— Benefits from construction activity

- Construction jobs and payroll associated with Project development.
- Indirect jobs and payroll generated by the purchase of goods and services by construction companies and families of construction workers.
- County tax revenues (excise tax surcharge, etc.) and State tax revenues (excise taxes, personal income taxes, corporate income taxes, etc.) paid by construction companies and workers, and by companies and families that are supported by construction activity.

— Benefits from operations at full development

- Expansion of Naulu Farm operations and its educational programs.
- New on-site affordable homes.
- Recreational improvements (renovated golf course, new clubhouse and new practice range; hiking trails; walking, bicycling, and golf cart paths; beach parking stalls; and an expansion of Mākena Landing).
- Direct jobs and payroll provided by operations and maintenance (**O&M**) of the homes, grounds, and expanded golf-course operations.
- Indirect jobs and payroll supported by the purchase of goods and services for O&M, by families of employees involved with O&M, and by families who will occupy the Project's new homes.
- County tax revenues (excise tax surcharge, property taxes, etc.) and State tax revenues (excise taxes, personal income taxes, corporate income taxes, etc.) paid by companies supply goods and services, and by families who will occupy the Project's new homes.

7. CONSISTENCY WITH STATE AND COUNTY POLICIES

a. Availability of Lands for Agriculture

State and County plans and policies call directly or implicitly for preserving the economic viability of plantation agriculture (sugarcane or pineapple) and promoting the growth of diversified agriculture (i.e., non-plantation agriculture). To accomplish this, an adequate supply of agriculturally suitable lands and water must be assured.

The Project's Ag lands have stony, low-quality soils and lack water for irrigating crops.

Regarding plantation agriculture, none of the Project site has a history of being used for sugarcane or pineapple cultivation.

Regarding diversified agriculture, none of the Project site has a known history of being used for growing diversified crops in the past 150+ years, and none of the land is suitable for commercial crops. However, the Project's Ag lands include about 267 acres of low-quality pastureland of which about 88 acres are used by ʻUlupalakua Ranch for grazing cattle over a few weeks each year. The loss of this land for grazing cattle will have a negligible impact on Ranch operations and, as a result, Hawaiʻi's cattle industry (see Subsection 5.a).

b. Conservation of Agricultural Lands

In addition to the above, State and County policies call for conserving and protecting prime agricultural lands, including protecting farmland from urban development.

As mentioned, the Project's Ag lands are characterized by stony, low-quality soils lacking access to irrigation water. None of this land is classified as prime agricultural land, none is suitable for commercial crop farming, and none is commercially farmed.

c. Redesignation from Agricultural to Urban/Rural

Discussions in the *Agriculture State Functional Plan* recognize that redesignation of lands from Agricultural to Urban and/or Rural should be allowed "… upon a demonstrated change in economic or social conditions, and where the requested redesignation will provide greater benefits to the general public than its retention in …agriculture;" that is, when an "overriding public interest exists."

The enormous contraction of plantation agriculture and the resulting increase in the supply of land that came available for diversified crop farming constitutes a major change in economic conditions. Moreover, the Project will provide community benefits (expansion of Naula Farm and its educational programs, homes, recreational improvements, jobs, payroll, tax revenues, etc.) that far exceed the benefits of leaving the land in agriculture (a mere fraction of a full-time job). Furthermore, the Project lands to be re-designated from Agricultural to Rural are within the Urban Growth Boundary (**UGB**) identified by Maui County.

d. Important Agricultural Lands (IAL)

None of the Project area is currently designated as Important Agricultural Lands (**IAL**), and future designation is highly improbable. Lands that are designated Urban and/or located within the County's UGB are not eligible for IAL designation. Furthermore, the Project's Ag lands do not meet the definition of IAL due to stony, low-quality soils and lack of water for irrigating crops. Specifically, these lands: (1) are incapable of producing sustained high agricultural yields, (2) contribute negligibly to the State's economic base, and (3) are not needed to promote the expansion of agricultural activities and income for the future.

e. County of Maui Land-Use Plans (MIP & KMCP)

Homes and other structures will be built within the County's UGB of the Maui Island Plan (**MIP**). The Project's Ag lands are located outside the UGB (about 133 acres) and will be preserved as open space. Therefore, the Project is consistent with the MIP.

Regarding the 1998 Kīhei-Mākena Community Plan (**KMCP**), about 44 acres at the north-east and southern areas of the Project site are designated Agriculture. These lands are outside the UGB and will remain as open space. Therefore, the Project is consistent with the Community Plan.

MĀKENA MAUKA:
IMPACTS ON AGRICULTURE

1. INTRODUCTION

AREG AC Makena Propco LLC (the **Applicant**), which does business as Mākena Golf & Beach Club Owners, proposes the development of Mākena Mauka (the "**Project**"), a low-density master planned residential community within the Mākena area of South Maui (**Mākena Resort**).

This report addresses the impacts of the Project on agriculture. The material below gives information about the Project, land designations, the agricultural conditions of the Project's agricultural lands, past and current agricultural uses, the impact of the Project on agriculture, benefits of the Project that would offset adverse agricultural impacts, and consistency of the Project with State and County agricultural policies. Figures are at the end of the report. The Appendix provides a summary of State and County goals, objectives, policies and guidelines related to agricultural lands.

2. PROJECT INFORMATION

a. Project Location and TMKs

The Project site is located in the Mākena region of south Maui, within the ahupuaʻa of Keauhou, Kalihi, Waipao, Pāpaʻanui, Kāʻeo, Maluaka, Mooiki, Mooloa, and Moomuku, in the moku of Honuaʻula, district of Makawao (see Figures 1 and 2).

Tax Map Keys (**TMKs**) for the Project include: (2)2-1-005:108; (2)2-1-006:036 and 057; (2)2-1-007:068, 092 and 093; (2)2-1-008:078, 079, 081, and 090; and (2)2-1-031:036(Por.).

b. Project Acreage

The Project site encompasses about 1,043.71 acres, including the existing Mākena North Golf Course and the Mākena South Golf Course. About 473 acres are planned for residential development.

c. Project Plans

Mākena Mauka is a low-density master-planned residential community (see Figure 3). The Project will provide 652 housing units, comprising 543 market-priced homes and 109 affordable homes. Additionally, it will incorporate the existing Mākena North Golf Course

and a renovated Mākena South Golf Course. Approximately 135,000 sq. ft. of support buildings will be developed, including space for golf operations and maintenance, restaurants, staff offices, etc. The community will feature hiking trails; walking, bicycling, and golf cart paths for connectivity; beach access and parking for the public; and areas reserved for conservation/open space.

The Project is within an area that has largely been planned for such uses for decades.

3. LAND-USE DESIGNATIONS AND REQUIRED APPROVALS

Much of the Project area has the necessary State and County land-use designations to support the proposed Project. However, changes in designations will be needed for the proposed rural-residential community in the most mauka portion of the Project area near the upper reaches of the 18-hole Mākena North Golf Course. Anticipated changes include: (1) a District Boundary Amendment (**DBA**) by the State Land Use Commission (**SLUC**) to change most of the lands used for the North Golf Course from the current Agricultural designation to Rural, (2) a Community Plan Amendment (**CPA**) (as may be required), and (3) a Change of Zoning (**CIZ**).

a. State Land-Use Districts

About 510 acres (52%) of the Project site are within the State's Agricultural District (the **Project's Ag lands**), including about 416 acres at the northern end of the site and 94 acres at the southern end (see Figure 4). The remaining lands (about 531 acres) are within the Urban District.

To support the proposed Project, the Applicant will petition the SLUC for a DBA to change the land designation from Agricultural to Rural. These Project's Ag lands include most of the Mākena North Golf Course. The Rural District designation will provide a gradual transition from the more makai Urban District lands and the Agricultural District lands mauka of the Project site. The Project lands to be re-designated from Agricultural to Rural are already within the Urban Growth Boundary (**UGB**) identified by Maui County.

The primary focus of the agricultural impact assessment contained in the report is on the Project's Ag lands.

b. Important Agricultural Lands (IAL)

None of the Project area is designated as Important Agricultural Lands (**IAL**). This is a supplemental State land-use classification administered by the SLUC (see Subsection 8.d. for further information on IAL).

c. Maui Island Plan (MIP)

Planned homes and other structures will be built within the County's UGB of the Maui Island Plan **(MIP)** (see Figures 3 and 5). The Project's Ag lands located outside the UGB (about 133 acres at the north-east and southern areas of the Project site) will remain as open space. Consequently, no amendments to the UGB will be necessary to accommodate the planned development.

d. Kīhei-Mākena Community Plan (KMCP)

The 1998 Kīhei-Mākena Community Plan (**KMCP**) designates much of the Project area for "Single-Family" or "Multi-Family" use (see Figure 6). However, about 44 acres at the north-east and southern areas of the Project site are designated Agriculture, and will remain as Open Space in the proposed Project plan.

The KMCP is currently undergoing an update by the County of Maui. It's possible that the revised Community Plan will incorporate land-use designations which align more closely with the Applicant's proposed Project. Consequently, the Applicant may not require a CPA to develop the project. If not, an application for a CPA may be submitted to the Maui Department of Planning for review and approval by the Maui County Council.

e. Maui County Zoning

Most of the development "parcels" around the North Golf Course were re-zoned for residential use in 2009 by the Maui County Council via Ordinance 3613 (see Figure 7). However, about 33 acres along the mauka border of the Project site are zoned Agriculture.

Areas within the Project currently designated as "Open Zone" will require rezoning to facilitate the proposed development. Following the DBA petition and, if necessary, the CPA application, an application for a Change in Zoning (**CIZ**) will be submitted to the Department of Planning for review and approval by the Maui County Council.

f. Special Management Area (SMA)

A portion of the project area lies within the Special Management Area (**SMA**) for the County of Maui (see Figure 3). A SMA Use Permit application(s) will be submitted to the Maui Department of Planning for those lands that are within the SMA, and which Project plans currently align with State and County land-use designations.

g. Shoreline Setback

A small portion of the planned planned Project—which includes golf-course, park and non-residential lands—is adjacent to the coastline. No new vertical development is proposed within this area.

4. AGRICULTURAL CONDITIONS

a. Soil Types and Characteristics

According to the Natural Resources Conservation Service (**NRCS**) of the U.S. Department of Agriculture, formerly known as the Soil Conservation Service, the Project Ag lands are comprised of (1) Keawakapu-Mākena soil association, Mākena series, and (2) Kamaole-Oanapuka soil association, Oanapuka series (see Figure 8). NRCS characterizes the soils of the Keawakapu-Mākena soil association as gently sloping to moderately steep and well drained. The underlying material is fine-textured to medium-textured subsoil and ranges in depth from shallow to deep and is comprised of fragmental ‘a‘a lava. The Mākena series consists of well-drained soils on uplands developed in volcanic ash. These soils are gently to moderate sloping and range in elevation from sea level to approximately 500 feet.

The Kamaole-Oanapuka association is also characterized as gently sloping to moderately steep and well-drained. These soils are extremely stony and are shallow to deep over fragmental lava. The Oanapuka series has surface and sub-layers of silt loam. The substratum is comprised of fragmental ‘a‘a lava.

Figure 9 shows the specific soil types underlying the Project area. These soil types and their corresponding acreages within the State Agricultural District are as follows:

— **MXC**: Makena loam, stony complex, 3 to 15 percent slopes (about 344 acres)

This complex consists of Makena loam and Stony land. Stony land occurs on low ridges and makes up 30 to 60 percent of the complex. Makena loam occurs in gently sloping areas between the low ridges of Stony land. Included are small areas of Keawakapu and Oanapuka soils. Also included are areas where out-crops of ‘a‘a lava cover as much as 15 percent of the surface.

In a representative profile the surface layer, about 4 inches thick, is very dark brown loam that has platy structure. The subsoil, about 19 inches thick, is very dark grayish-brown and. dark yellowish-brown silt loam that has prismatic structure. The substratum is dark yellowish-brown cobbly silt loam. The depth to ‘a‘a lava is more than 40 inches. Surface stoniness varies from nonstony to extremely stony near lava flows and drainage ways. The texture is loam or silt loam.

The soil is mildly alkaline in the surface layer and subsoil. On the Makena part of the complex, permeability is moderately rapid, runoff is slow to medium, and the erosion hazard is slight to moderate. The available water capacity is about 1.8 inches per foot of soil. On the Stony land part, permeability is very rapid and there is no erosion hazard.

This soil complex is used for pasture and wildlife habitat.

— **OAD**: Oanapuka very stony silt loam, 7 to 25 percent slopes (about 72 acres)

In a representative profile the surface layer, about 6 inches thick, is very dark brown and very dark grayish-brown silt loam that has granular and subangular blocky structure. The subsoil, about 9 inches thick, is very dark grayish-brown silt loam that has prismatic structure. The substratum is dark yellowish-brown silt loam, loam, and stone-size ʻaʻa lava. The depth of the soil ranges from 40 to more than 60 inches.

The soil is medium acid to slightly acid in the surface layer, neutral in the subsoil, and neutral to mildly alkaline in the substratum. Permeability is moderately rapid. Runoff is slow, and the erosion hazard is slight to moderate. The available water capacity is about 1.0 inch per foot of soil. In places roots penetrate to a depth of 4 feet or more.

This soil is used for pasture and wildlife habitat.

— **OED**: Oanapuka extremely stony silt loam, 7 to 25 percent slopes (about 8 acres)

This soil is similar to OAD, except that stones cover 3 to 15 percent of the surface area and includes small areas of rock outcrop.

This soil is used for pasture and wildlife habitat.

— **rVS**: Very stony land (rVS) (about 86 acres)

This land type consists of areas where 50 to 90 percent of the surface is covered with stones and boulders, and includes some very steep gulches. Slopes range from 7 to 30 percent. On Maui, this land type consists of young ʻaʻa lava that has a thin covering of volcanic ash which locally extends deep into cracks and depressions. The ash-covered areas support a stand of shrubs and grasses.

This land type is used for pasture and wildlife habitat. Pasture improvements are very difficult because of the many stones.

b. Soil Ratings

Three classification systems are commonly used to rate Hawaiʻi soils: (1) Land Capability and Pasture Groupings, (2) Agricultural Lands of Importance to the State of Hawaiʻi, and (3) Overall Productivity Rating.

Land Capability and Pasture Groupings (NRCS Rating)

NRCS's 1972 Land Capability Grouping rates soils according to eight levels, ranging from the highest classification level "I" to the lowest "VIII."

The soil ratings for the Project's Ag lands, along with the pasture group, are as follows:

Soil Type	Acres	Rating Irrigated	Rating Non-Irrigated	Pasture Group
MSC	344			
Makena	40 - 70%	nr	**VIs**	**1**
Stony	30 - 60%	nr	**VIIs**	nr
OAD	72	nr	**VIIs**	**2**
OED	8	nr	**VIIs**	**2**
rVS	86	nr	**VIIs**	nr

nr = not rated

Class VI rated soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife habitat. Class VII rated soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture or range, woodland, or wildlife habitat. The sub-classification "s" indicates that the limitation is due to stoniness, unfavorable texture, shallowness, or low water-holding capacity.

Soils in Pasture Groups 1 and 2 yield the lowest forage of the 14 Pasture Groups. For Pasture Group 1, unimproved pasture produces 400 to 1,300 pounds of air-dry forage per acre per year. Three-fourths or more of the annual forage crop is produced during the rainy season. In summer, most of the annuals die and the perennials become dormant. Well-managed improved pasture produces 1,700 to 2,600 pounds of air-dry forage per acre per year. Improvements of pasture are difficult in stony areas. Seeding, fertilization, and weed and brush control are limited to hand and aerial methods. Improvements of pasture on eroded soils can be difficult because of winds and low rainfall.

For Pasture Group 2, unimproved pasture produces 700 to 1,700 pounds of air-dry forage per acre per year. Forage production in winter is about three times as much as that in summer. Well-managed improved pasture produces 1,400 to 2,600 pounds of air-dry forage per acre per year. Improvements of pasture are difficult on extremely stony and extremely rocky soils and on soils steeper than 40 percent. Seeding, fertilization, and weed and brush control are limited to hand and aerial methods. Improvements are difficult on eroded soils because of winds and low rainfall.

For comparison, the highest forage yields are produced on lands in Pasture Group 7: 3,000 to 6,000 pounds of air-dry forage per acre per year for unimproved pastures, and 7,000 to 16,000 pounds of air-dry forage per acre per year for will-managed improved pastures.

Agricultural Lands of Importance in the State of Hawai‘i (ALISH)

ALISH ratings were developed in 1977 by the NRCS, University of Hawai‘i (**UH**) College of Tropical Agriculture and Human Resources, and the State of Hawai‘i, Department of Agriculture. This system classifies land into three broad categories: (a) "**Prime**" agricultural land which is land that is best suited for the production of crops because of its ability to sustain high yields with relatively little input and with the least damage to the environment; (b) "**Unique**" agricultural land which is non-Prime agricultural land used for the production of specific high-value crops (e.g., taro); and (c) "**Other**" agricultural land which is non-Prime and non-Unique agricultural land that is important to the production of crops. Agricultural land that is not rated in any of these three categories is labeled "**Not Classified**" due to poor agricultural quality, and/or inability to produce high-value crops or important crops.

As shown in Figure 10, the entire Project site is comprised of soils that are "**Not Classified**."

Overall Productivity Rating (LSB Rating)

In 1967, the UH Land Study Bureau (**LSB**) developed the Overall Productivity Rating, which classifies soils according to five levels, with "**A**" representing the class of highest productivity and "**E**" the lowest.

As indicated in Figure 11, the Agricultural lands within the Project Area have soils with the lowest productivity rating of "**E**."

c. Elevations

The Agricultural land within the Project site ranges in elevation from about 25 feet in the south to nearly 790 feet in the north.

d. Slopes

The Agricultural land within the Project site averages about 5% in the north and about 7.2% in the south.

e. Climatic Conditions

Like other areas in Hawai‘i, Mākena has a mild semitropical climate that is due primarily to three factors: (1) Hawai‘i's mid-Pacific location near the Tropic of Cancer, (2) the surrounding warm ocean waters that vary little in temperature between the winter and summer seasons, and (3) the prevailing northeasterly tradewinds that bring air having temperatures which are close to those of the surrounding waters. In terms of local conditions, Mākena is located within one of the drier areas of Maui along the southwest coast. This area is generally sunny, warm, and dry throughout the entire year.

Solar Radiation

The site receives considerable sunshine, with average daily insolation of about 500 calories per square centimeter per day.

Rainfall

Rainfall at the Mākena North Golf Course averages about 16 inches annually. Most of this rainfall occurs during the winter rainy season (October through March).

Temperatures

At the Mākena North Golf Course, average monthly temperatures range from 63°F to 81°F in the winter (February), and 69°F to 88°F in the summer (August).

Winds

At the Mākena Beach State Park, prevailing surface winds are tradewinds that blow from the east at about 5 to 15 miles per hour (**mph**).

f. Irrigation Water

Because of the poor soils for growing crops on the Project's Ag lands, a water source for irrigating crops was never developed for these lands, nor was irrigation water transported from outside the region.

Recycled wastewater is available from the Mākena Wastewater Reclamation Plant. The plant's capacity is 0.75 million gallons per day (**mgd**) of recycled water, although the current supply from the plant is only 60,000 to 80,000 gallons per day (**gpd**). This plant was designed to supply recycled water to irrigate portions of the golf-course grounds and landscaped areas at Mākena. None of the recycled water is currently available to irrigate crops.

g. Road Access

Currently, the Agricultural lands within the Project site are reached primarily via gravel roads which connect to Makena Alanui Road and Makena Road.

h. Distance to Markets and Shipping Terminals

Trucking distance from Makena to Kahului is about 18 miles. Kahului serves as the island's primary commercial, industrial, distribution and transportation center. The town encompasses Kahului Harbor and Kahului Airport.

i. Summary of Agricultural Conditions

The 510 acres of the Project's Ag land are unsuitable for crop farming due to stony, low-quality soils and lack of water for irrigating crops. Depending on rainfall, about 267 acres are suitable for low-quality pastures for seasonally grazing a small number of cattle.

5. PAST, CURRENT AND SURROUNDING LAND USES

a. Past Agricultural Use5

Before cattle were introduced to Maui and extending into the 1800s, the upland forest zone was much lower than it is today, and the Mākena region received more rainfall. This rainfall was sufficient to allow the seasonal cultivation of sweet potato (ʻuala) in small gardens within Mākena. About a month before the rainy season began, soil for planting was carried in lauhala baskets from the mountains to Mākena. Most other fruits and vegetables for Hawaiians living in Mākena were imported from areas having better soils and abundant water.

For most of the past century, and possibly longer, nearly all of the Project site was used for grazing cattle. In 1973, ʻUlupalakua Ranch (the **Ranch**) sold the property to The Seibu Group of Japan. Starting in the early 1980s, the area used for grazing cattle was reduced to allow development of Mākena Resort.

b. Current Uses of the Project's Ag Lands

At the northern end of the Project site, ʻUlupalakua Ranch is allowed to graze cattle on about 88 acres of the Project's Ag lands. The grazing is infrequent (a few weeks per year) by a small number of cattle.

Naulu Farm is a small non-commercial farm located adjacent to the clubhouse of the Mākena North Golf Course. The Farm began in 2020, and encompass approximately 2 acres. A small volume of water is supplied to the Farm from a private well that supplies water to Mākena Resort. Operations include an animal farm (sheep, rabbits, pigs, chickens, and turtles), a greenhouse dedicated to cultivating native species, a vegetable and fruit garden, an aquaponics system, and educational programs. The garden yields about 3,400 pounds annually, including vegetables, papayas, kalo, squash, lettuce, ulu, limes, bananas, etc. Edibles are supplied to the restaurant. The greenhouse propagates over 30 native species and can produce approximately 25,000 native plants annually for replanting areas within the Project site. Five workers are currently employed at the Farm. The Farm does not generate revenues through sales; instead, its operations are subsidized by a portion of the homeowner's association fees.

About 36 acres of the Project's Ag lands are landscaped for the Mākena North Golf Course. Grasses are grown on soil that was transported to the site for the golf-course greens and fairways.

The remaining Ag lands consists of dry forest dominated by kiawe trees, sourgrass, koa haole and wild basil. A detailed list of native species is provided in the Flora & Fauna report by Rick Barboz.

c. Surrounding Land Uses

Figure 2 shows the current use of lands surrounding the Project's Ag lands. Mauka lands include (1) the 750-acre U-1 Agricultural Subdivision, of which about 700 acres will remain available to ʻUlupalakua Ranch for grazing cattle and occasionally sheep; and (2) other lands used by the Ranch for grazing. To the north are the Wailea Gold Golf Course, Wailea Resort, and existing and planned resort-residential projects. Makai are resort facilities, homes, the historic Keawalaʻi Church, beach parks, and undeveloped land. To the south are the Mākena State Park (Big Beach or Oneloa), various single-family homes and, farther south, ʻĀhihi-Kīnaʻu Natural Preserve Area (La Perouse).

Consistent with the absence of high-quality soils in Mākena and nearby communities, the region lacks commercial farming activities and does not host a farming community (see Figure 12). While the region does support limited and intermittent cattle and sheep grazing, most ranching activities are concentrated mauka on lands of ʻUlupalakua Ranch.

6. IMPACTS ON AGRICULTURE

The Project's 510 acres of Ag land is about 0.21% of the 242,723 acres in the Agricultural District on Maui Island, and 0% of the 72,300 acres of high-quality farmland (see Figure 12). The accounting of high-quality farmland encompasses land in the Agricultural District that possesses one or more high soil ratings: an NRCS rating of I or II; an ALISH rating of Prime or Unique, and/or an LSB rating of A or B. However, this accounting excludes land used for country estates and golf courses.

a. Impacts on Grazing Operations

<u>On-Site Grazing</u>

The Project will end ʻUlupalakua Ranch's use of 88 acres of the Project Ag land for grazing cattle. Grazing on this land occurs sporadically over a few weeks each year by a small number of cattle. The low grazing intensity is attributed to the low forage growth, which is consistent with the low-quality soils and low rainfall (see Subsection 4.i).

Established in 1845, ʻUlupalakua Ranch currently grazes about 2,300 brood cows on over 18,000 acres of land on the southern slopes of Haleakalā. The higher-quality pastures are at higher elevations where rainfall exceeds 30 inches per year.

The reduction in pasture acreage and beef production attributable to the loss of 88 acres of low-quality pasture will be negligible, representing less than 0.5% of the Ranch's total acreage. No loss in Ranch employment will occur due to the Project.

Nearby Grazing

Cattle and sheep operations by ʻUlupalakua Ranch on lands mauka of the Project site will not be impacted by Project construction nor operations at full development. Numerous residential and resort projects throughout Hawaiʻi have demonstrated that low-intensity grazing is compatible with such projects, resulting in minimal or no impacts on grazing operations. Examples of such projects include Mākena, Wailea, Kula, Makakilo on Oʻahu, Princeville on Kauaʻi, Waimea on the Big Island, and many others.

Furthermore, low-intensity grazing operations are desirable near residential and resort projects because the grazing of grasses reduces the fire hazard to homes and buildings.

b. Impacts on Crop Farming

Currently, no commercial crops are grown within or near the Project site, and there are no known plans to establish commercial farms nearby. In addition, development of commercial farms in the vicinity is unlikely due to poor soils and water scarcity. Consequently, Project development and operations will not impact current or anticipated commercial crop farms.

Regarding the non-commercial Naulu Farm, plans are to expand the greenhouse operations to supply native species for replanting various areas within the Project and for maintaining preservation areas. Employment is projected to increase from the current five workers to 12 workers in a few years. In addition, educational programs will be increased.

c. Impacts on the Growth of Crop Farming

The Project will result in redistricting about 510 acres from the State Agricultural District to the Rural District. However, this redistricting will have no impact on the growth of commercial crop farming on Maui since the stony, low-quality soils and lack of irrigation water render this land unsuitable for cultivating commercial crops (see Subsection 4.i).

d. Mitigating Measures

No mitigation measures are warranted in view of the findings of: (1) negligible impacts on cattle-grazing operations, (2) no impacts on existing or anticipated commercial crop-farming operations, (3) a beneficial expansion of the non-commercial Naulu Farm, and (4) no impact on the growth of commercial crop farming.

7. OFFSETTING BENEFITS

The redistricting of about 510 acres of low-quality agricultural land from the Agricultural District to the Rural District will be offset by the following benefits of the Project:

— Benefits from construction activity

- Construction jobs and payroll associated with Project development.
- Indirect jobs and payroll generated by the purchase of goods and services by construction companies and families of construction workers.
- County tax revenues (excise tax surcharge, etc.) and State tax revenues (excise taxes, personal income taxes, corporate income taxes, etc.) paid by construction companies and workers, and by companies and families that are supported by construction activity.

— Benefits from operations at full development

- Expansion of Naulu Farm operations and its educational programs.
- New on-site affordable homes.
- Recreational improvements (renovated golf course, new clubhouse and new practice range; hiking trails; walking, bicycling, and golf cart paths; beach parking stalls; and an expansion of Mākena Landing).
- Direct jobs and payroll provided by operations and maintenance (**O&M**) of the homes, grounds, and expanded golf-course operations.
- Indirect jobs and payroll supported by the purchase of goods and services for O&M, by families of employees involved with O&M, and by families who will occupy the Project's new homes.
- County tax revenues (excise tax surcharge, property taxes, etc.) and State tax revenues (excise taxes, personal income taxes, corporate income taxes, etc.) paid by companies supply goods and services, and by families who will occupy the Project's new homes.

8. CONSISTENCY WITH STATE AND COUNTY POLICIES

a. Availability of Lands for Agriculture

The *Hawai'i State Constitution*, the *Hawai'i State Plan*, the *State Agriculture Functional Plan*, the *County of Maui 2030 General Plan,* the County's *Maui Island Plan,* and the County's *Kihei-Makena Community Plan* call directly or implicitly for preserving the economic viability of plantation agriculture (sugarcane or pineapple) and promoting the growth of diversified agriculture (i.e., non-plantation agriculture). To accomplish this, an adequate supply of agriculturally suitable lands and water must be assured.

The Project's Ag lands have stony, low-quality soils and lack water for irrigating crops.

Regarding plantation agriculture, none of the Project site has a history of being used for sugarcane or pineapple cultivation.

Regarding diversified agriculture, none of the Project site has a known history of being used for growing diversified crops in the past 150+ years, and none of the land is suitable for commercial crops. However, the Project's Ag lands include about 267 acres of low-quality pastureland of which about 88 acres are used by ʻUlupalakua Ranch for grazing cattle over a few weeks each year. The loss of this land for grazing cattle will have a negligible impact on Ranch operations and, as a result, Hawaiʻi's cattle industry (see Subsection 6.a).

b. Conservation of Agricultural Lands

In addition to the above, State and County policies call for conserving and protecting prime agricultural lands, including protecting farmland from urban development.

As mentioned, the Project's Ag lands are characterized by stony, low-quality soils lacking access to irrigation water. None of this land is classified as prime agricultural land, none is suitable for commercial crop farming, and none is commercially farmed (see Section 4 and Subsection 5.b).

c. Redesignation from Agricultural to Urban/Rural

Discussions in the *Agriculture State Functional Plan* recognize that redesignation of lands from Agricultural to Urban and/or Rural should be allowed "… upon a demonstrated change in economic or social conditions, and where the requested redesignation will provide greater benefits to the general public than its retention in …agriculture;" that is, when an "overriding public interest exists."

The enormous contraction of plantation agriculture and the resulting increase in the supply of land that came available for diversified crop farming constitutes a major change in economic conditions (see Figure 13 for Statewide acreage in crop from 1960 to 2023[1]). Moreover, the Project will provide community benefits (expansion of Naula Farm and its educational programs, homes, recreational improvements, jobs, payroll, tax revenues, etc.) that far exceed the benefits of leaving the land in agriculture (a mere fraction of a full-time job)—see Subsection 6.a and Section 7. Furthermore, the Project lands to be re-designated from Agricultural to Rural are within the UGB identified by Maui County.

d. Important Agricultural Lands (IAL)

Chapter 205, Hawai'i Revised Statutes (**HRS**), declares "… that the people of Hawaii have a substantial interest in the health and sustainability of agriculture as an industry in the State. There is a compelling state interest in conserving the State's agricultural land resource base and assuring the long-term availability of agricultural lands for agricultural use to achieve the purposes of: (1) Conserving and protecting agricultural lands; (2) Promoting

1. In Figure 13, the recent increase in crop acreage reflects plantings by Mahi Pono on former sugarcane lands in Central Maui.

diversified agriculture; (3) Increasing agricultural self-sufficiency; and (4) Assuring the availability of agriculturally suitable lands …". "The objective for the identification of important agricultural lands is to identify and plan for the maintenance of a strategic agricultural land resource base that can support a diversity of agricultural activities and opportunities that expand agricultural income and job opportunities and increase agricultural self-sufficiency for current and future generations."

IALs are defined as lands that: "(1) Are capable of producing sustained high agricultural yields when treated and managed according to accepted farming methods and technology; (2) Contribute to the State's economic base and produce agricultural commodities for export or local consumption; or (3) Are needed to promote the expansion of agricultural activities and income for the future, even if currently not in production."

The IAL designation is a supplemental State land use classification that provides access to incentives that promote profitable farming of IALs. The designation does not change existing land classifications (i.e., State Land Use Districts, County community plan designations, County zoning, etc.), nor does it restrict allowable uses of IAL-designated agricultural land.

Landowners can petition the SLUC to designate as IAL all or portions of their agricultural land. In addition, each county is required to identify, map and recommend lands within its jurisdiction that have potential for IAL designation in keeping with the standards, criteria and procedures established by law. After the SLUC reviews a County's recommendations, the SLUC is responsible for designating IALs.

None of the Project area is currently designated as IAL, and future designation is highly improbable. Lands that are designated Urban and/or located within the County's UGB are not eligible for IAL designation. Furthermore, the Project's Ag lands do not meet the definition of IAL due to stony, low-quality soils and lack of water for irrigating crops. Specifically, these lands: (1) are incapable of producing sustained high agricultural yields, (2) contribute negligibly to the State's economic base, and (3) are not needed to promote the expansion of agricultural activities and income for the future.

e. County of Maui Land-Use Plans (MIP & KMCP)

As mentioned in Subsection 3.d, homes and other structures will be built within the County's UGB of the MIP (see Figures 3 and 5). The Project's Ag lands are located outside the UGB (about 133 acres) and will be preserved as open space. Therefore, the Project is consistent with the MIP.

Regarding the KMCP, about 44 acres at the north-east and southern areas of the Project site are designated Agriculture (see Subsection 3.e and Figure 6). These lands are outside the UGB and will remain as open space. Therefore, the Project is consistent with the Community Plan.

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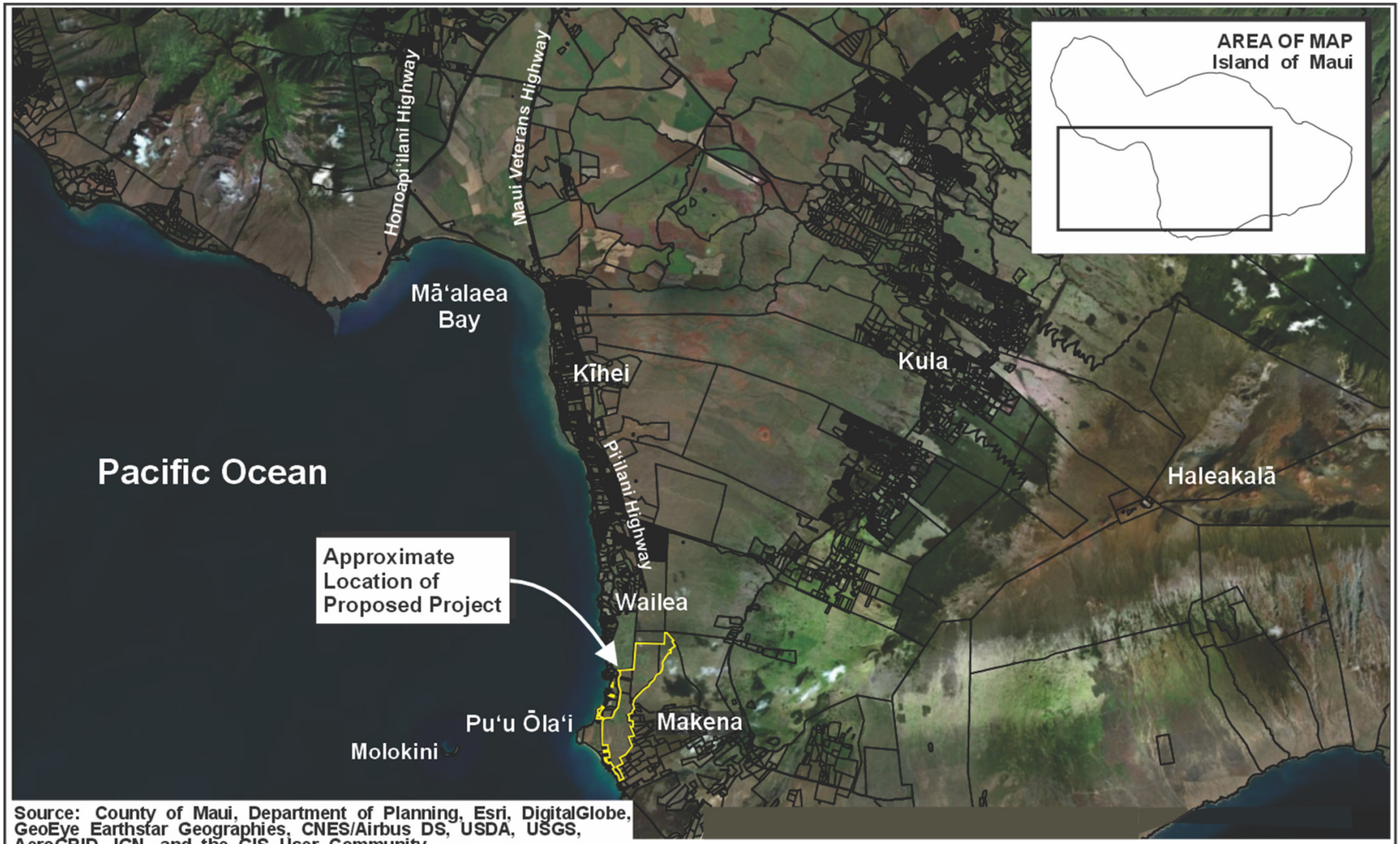


Source: County of Maui, Department of Planning, Esri, DigitalGlobe, GeoEye Earthstar Geographies, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 1

Mākena Mauka

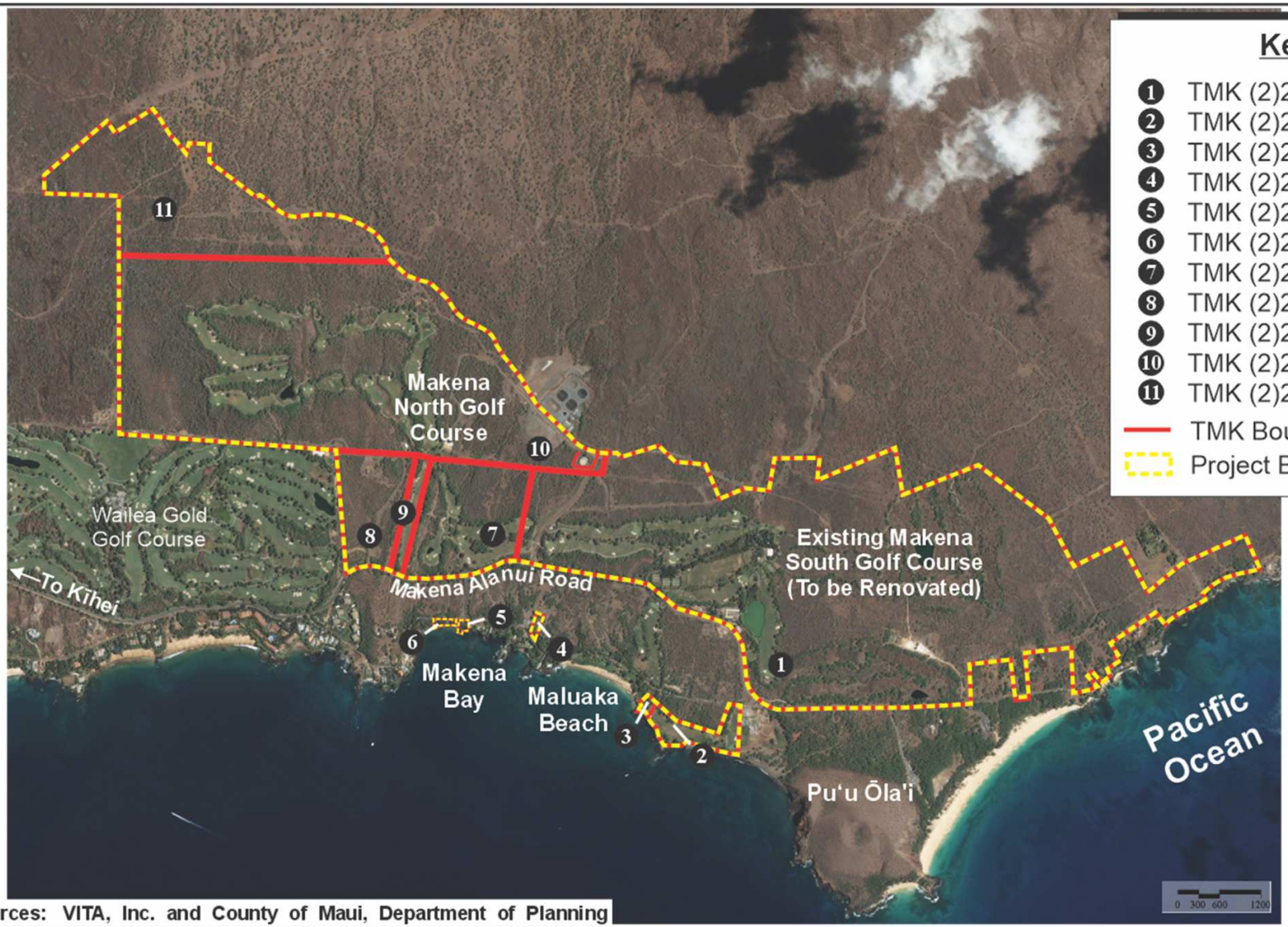
Regional Location Map

8250 Feet
0 4125 16500

Prepared for: AREG AC Makena Propco LLC

MUNEKIYO HIRAGA

ATCMakena/Makena MP EIS 2100/Applications/Figures/Regional Location



Sources: VITA, Inc. and County of Maui, Department of Planning

Figure 2

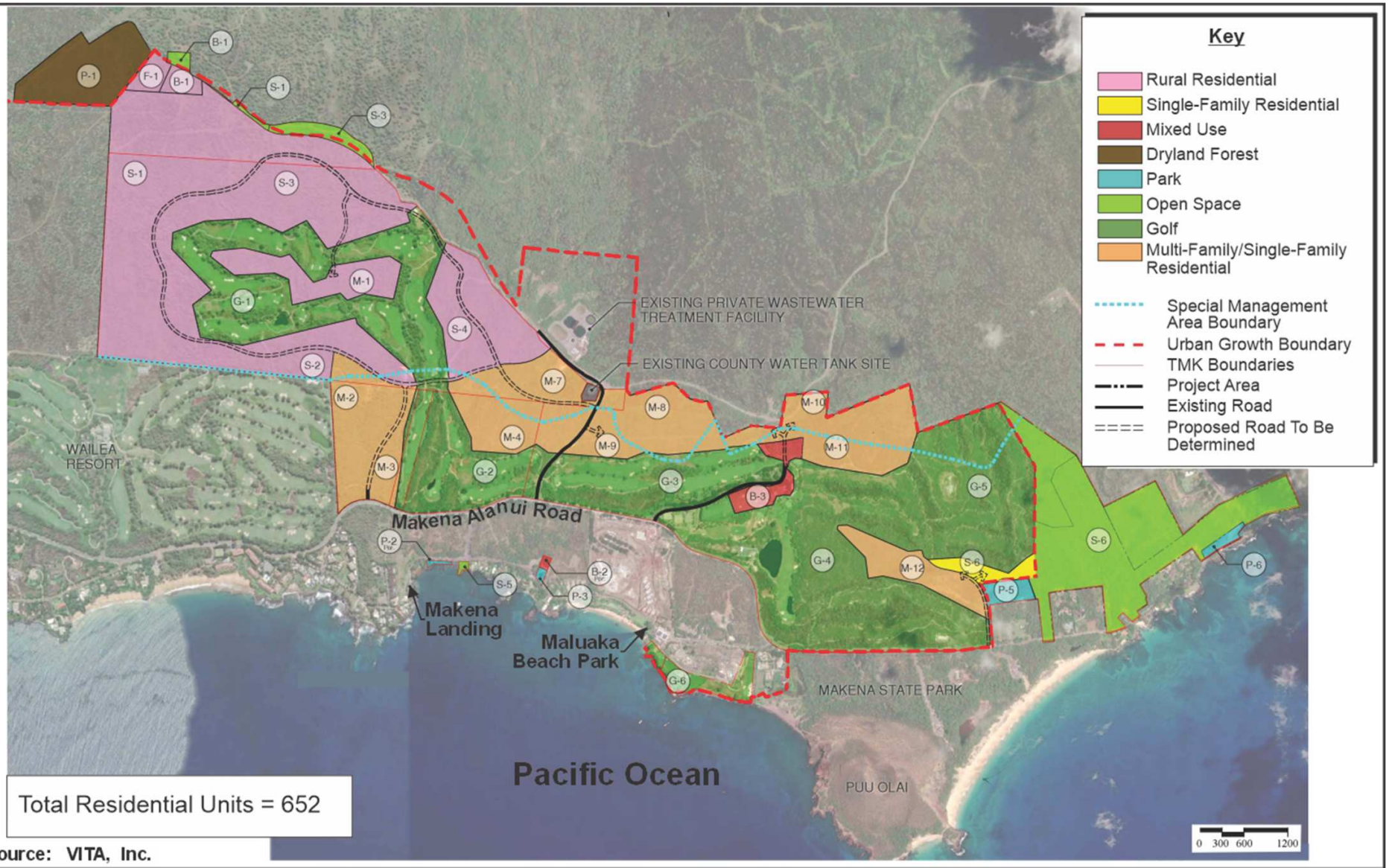
Mākena Mauka

Property Location Map

Prepared for: AREG AC Makena Propco LLC

MUNEKIYO HIRAGA

ATCMakena/Makena MP EIS 2100/Applications/Figures/Property Location



Source: VITA, Inc.

Figure 3

Mākena Mauka
Conceptual Land Use Plan

Prepared for: AREG AC Makena Propco LLC

MUNEKIYO HIRAGA

ATCMakena/Makena MP EIS 2100/Applications/Figures/ConcLandUse

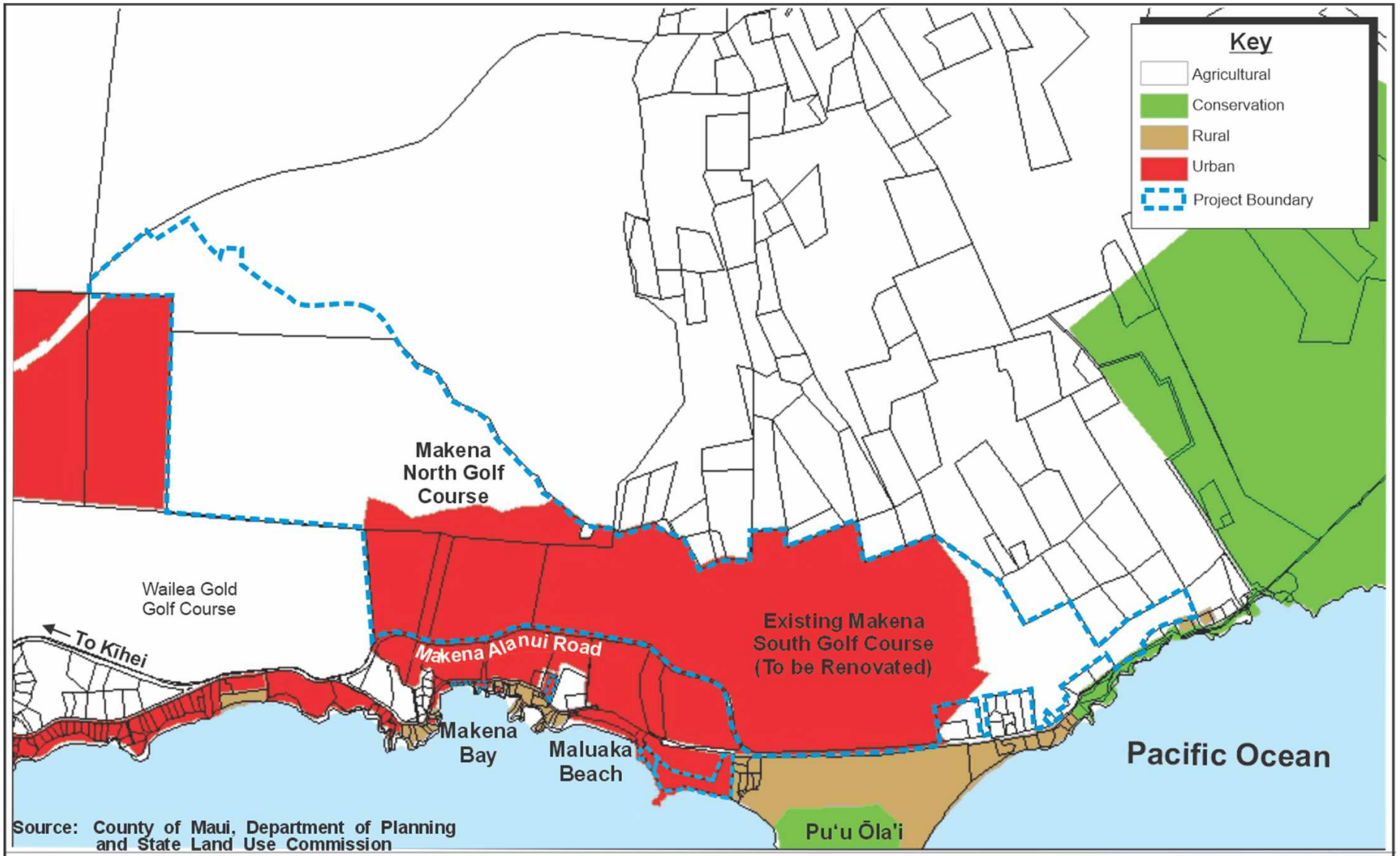


Figure 4

Mākena Mauka

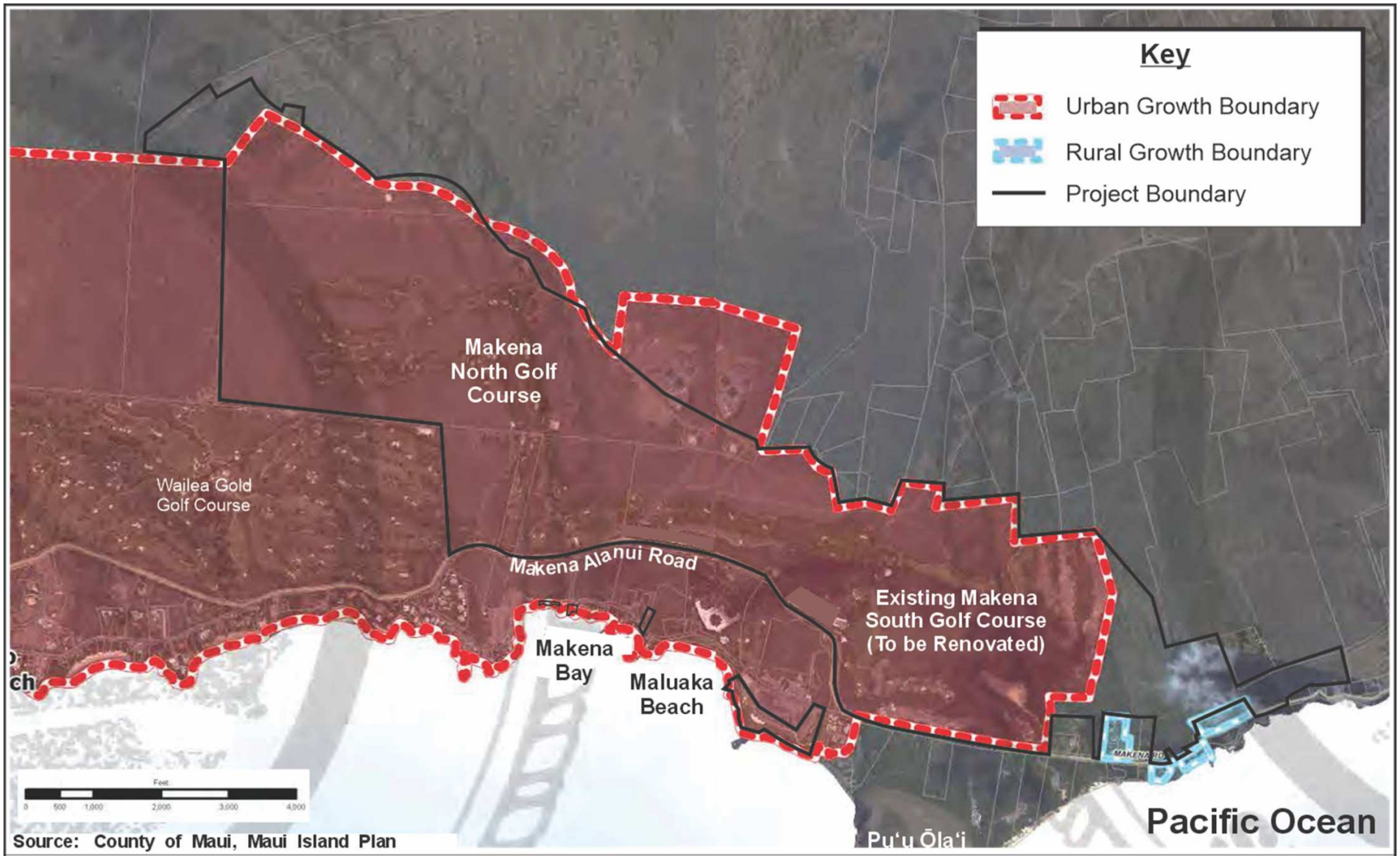
State Land Use District Map

1125
0 Feet
562.5 2250

Prepared for: AREG AC Makena Propco LLC

MUNEKIYO HIRAGA

ATCMakena/Makena MP EIS 2100/Applications/Figures/SLUD



Source: County of Maui, Maui Island Plan

Figure 5

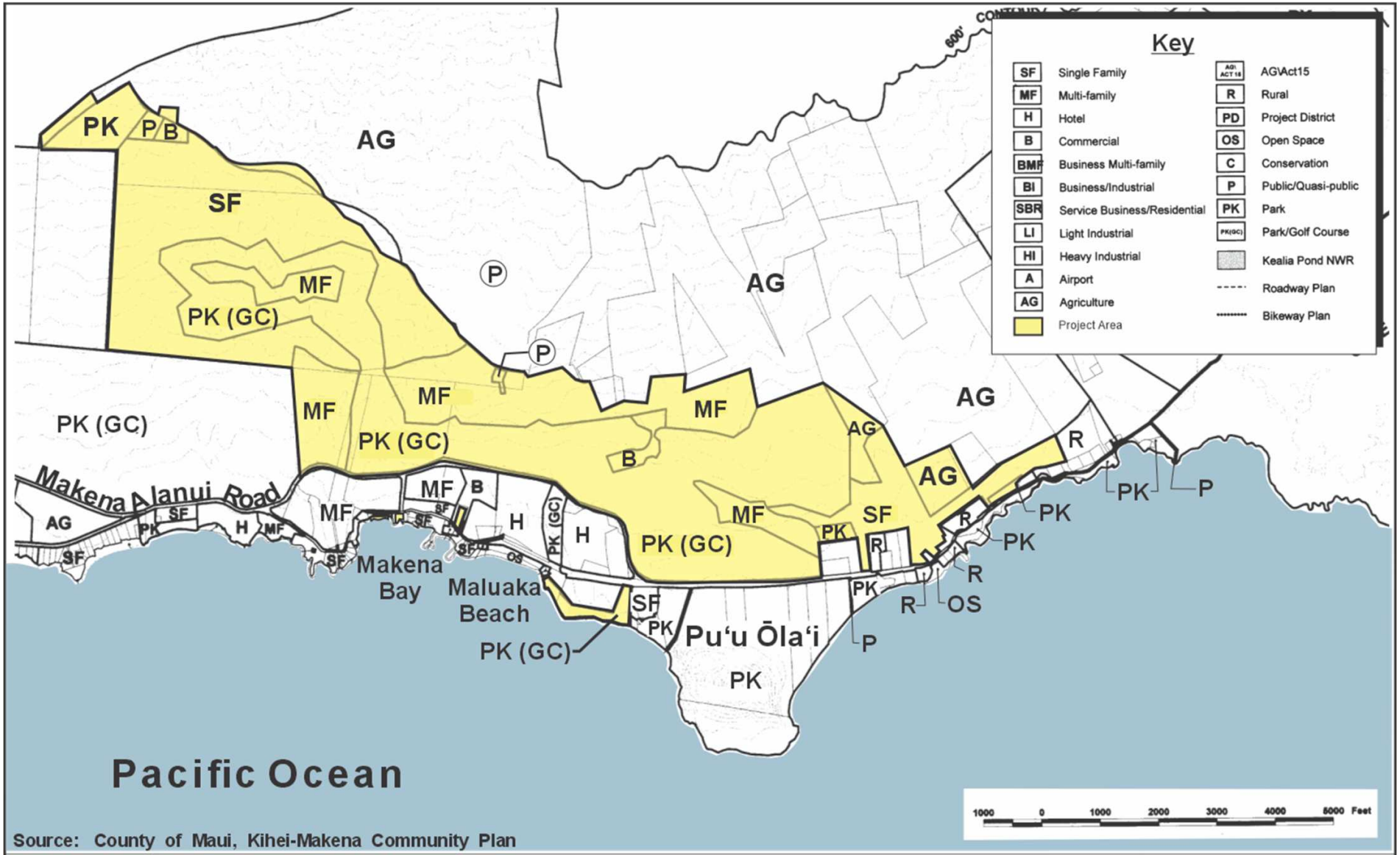
Mākena Mauka

Maui Island Plan Map

Prepared for: AREG AC Makena Propco LLC

MUNEKIYO HIRAGA

ATCMakena/Makena MP EIS 2100/Applications/Figures/MIP



Source: County of Maui, Kihei-Makena Community Plan

Figure 6

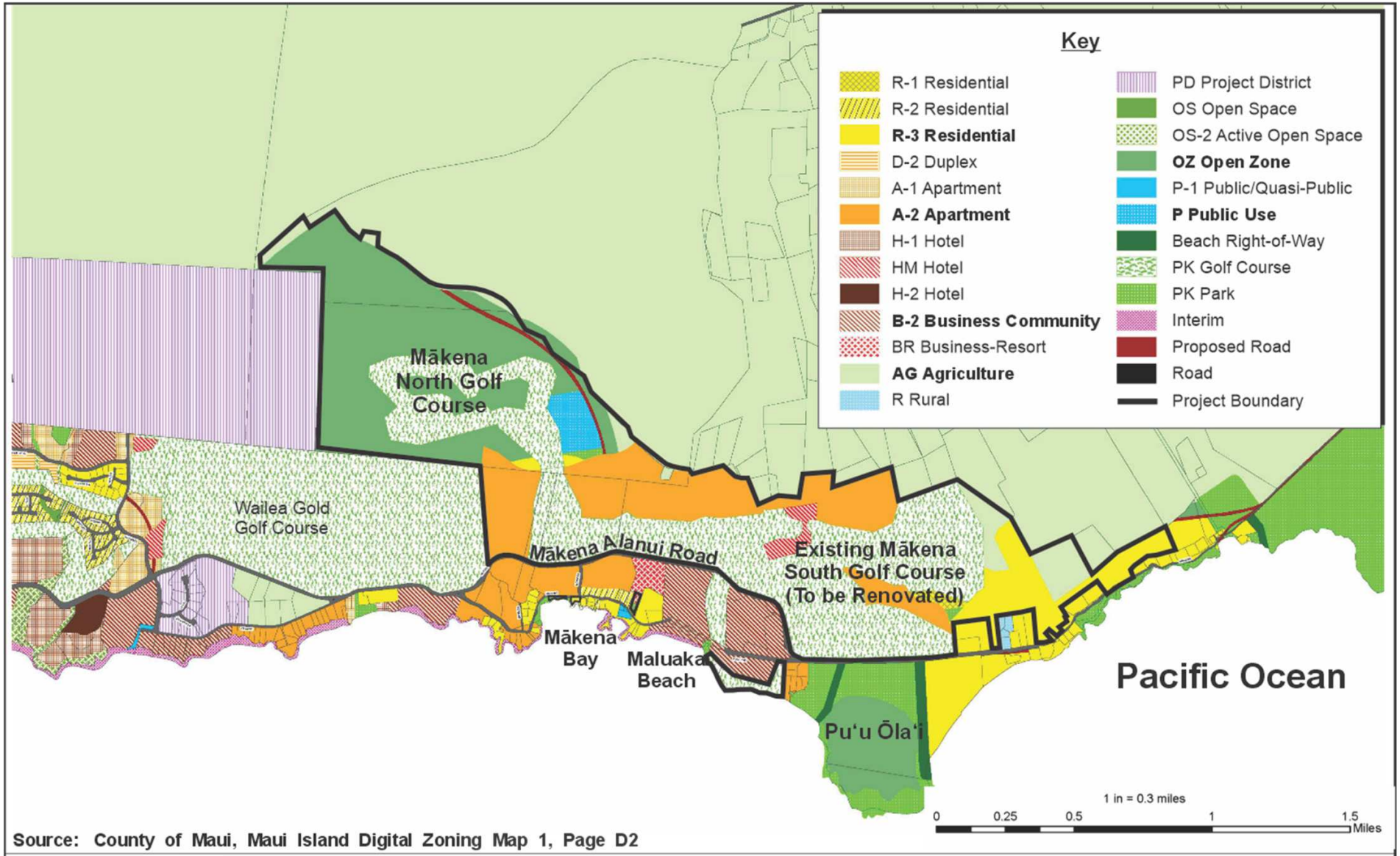
Mākena Mauka

Community Plan Designations Map

Prepared for: AREG AC Makena Propco LLC

MUNEKIYO HIRAGA

ATCMakena/Makena MP EIS 2100/Applications/Figures/KM Comm Plan



Source: County of Maui, Maui Island Digital Zoning Map 1, Page D2

Figure 7

Mākena Mauka

Maui County Zoning Map

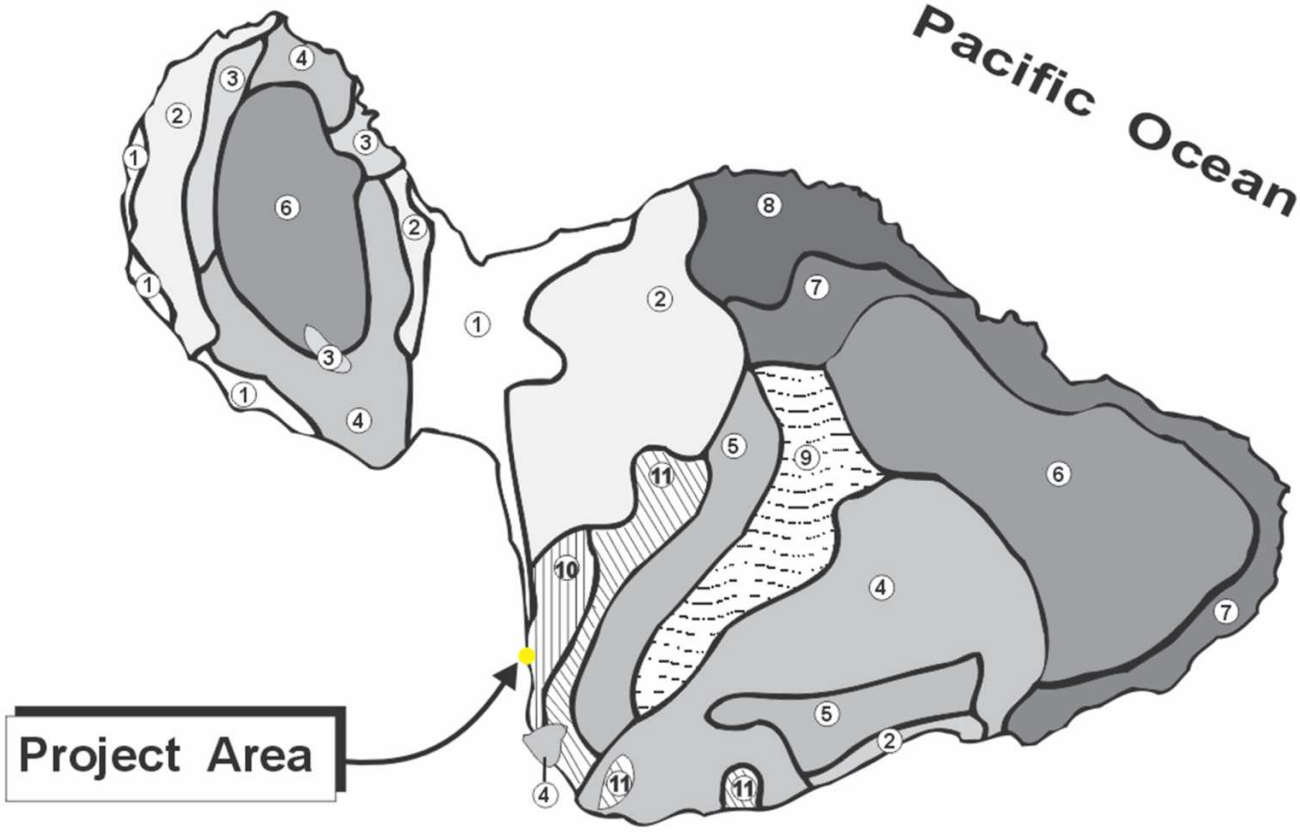
Prepared for: AREG AC Makena Propco LLC

MUNEKIYO HIRAGA

ATCMakena/Makena MP EIS 2100/Applications/Figures/Maui County Zoning

LEGEND

- 1 Pulehu-Ewa-Jaucas association
- 2 Waiakoa-Keahua-Molokai association
- 3 Honolua-Olelo association
- 4 Rock Land-Rough Mountainous Land association
- 5 Puu Pa-Kula-Pane association
- 6 Hydrandepts-Tropaquods association
- 7 Hana-Makaalae-Kailua association
- 8 Pauwela-Haiku association
- 9 Laumaia-Kaipoipoi-Olinda association
- 10 Keawakapu-Makena association
- 11 Kamaole-Oanapuka association



Source: USDA, Soil Conservation Service

Figure 8

Mākena Mauka
Soil Association Map

NOT TO SCALE

Prepared for: AREG AC Makena Propco LLC

MUNEKIYO HIRAGA

ATCMakena/Makena MP EIS 2100/Applications/Figures/Soils Association

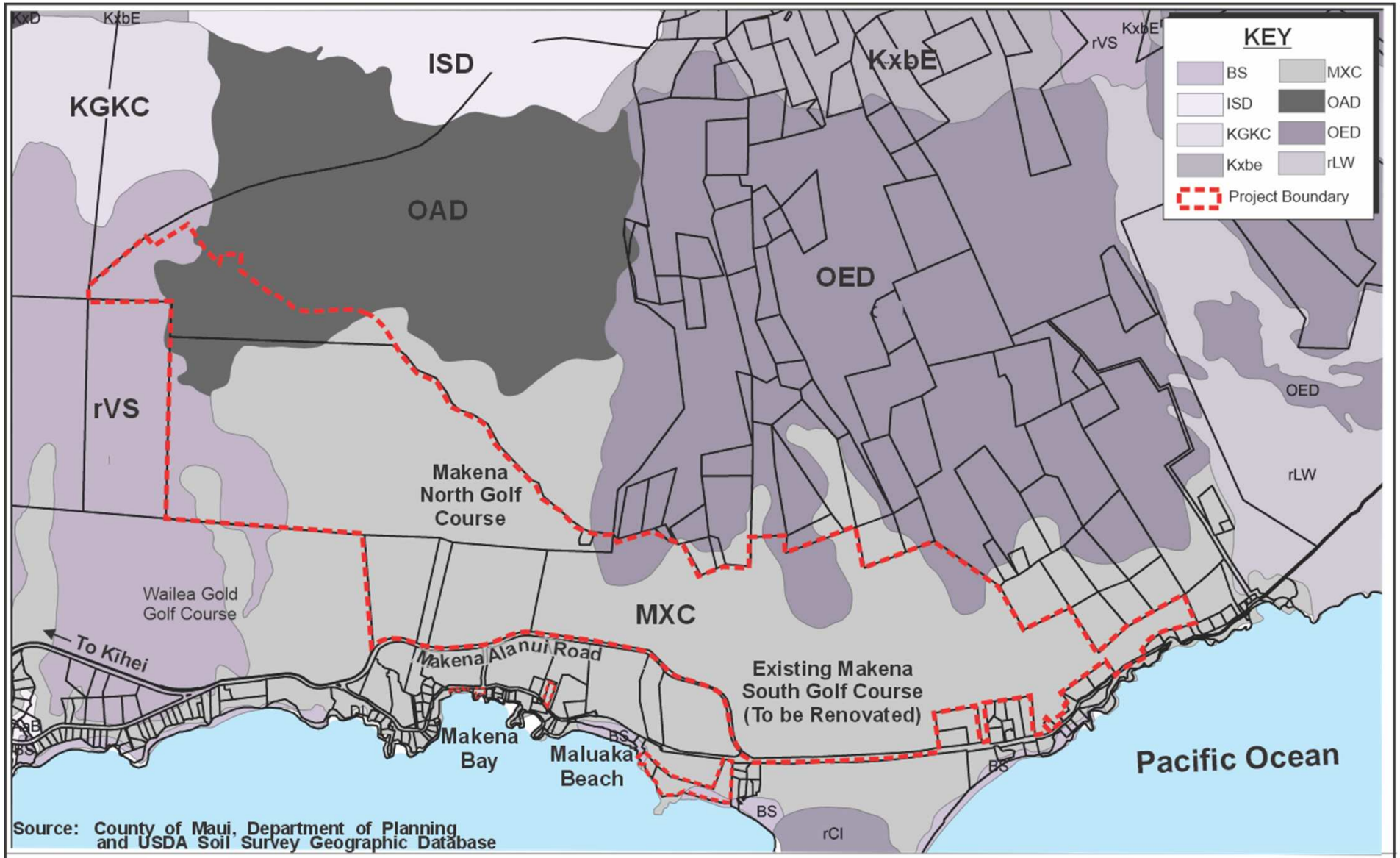


Figure 9

Mākena Mauka

Soil Classification Map

0 1125 Feet
562.5 2250

Prepared for: AREG AC Makena Propco LLC

MUNEKIYO HIRAGA

ATCMakena/Makena MP EIS 2100/Applications/Figures/Soil Class

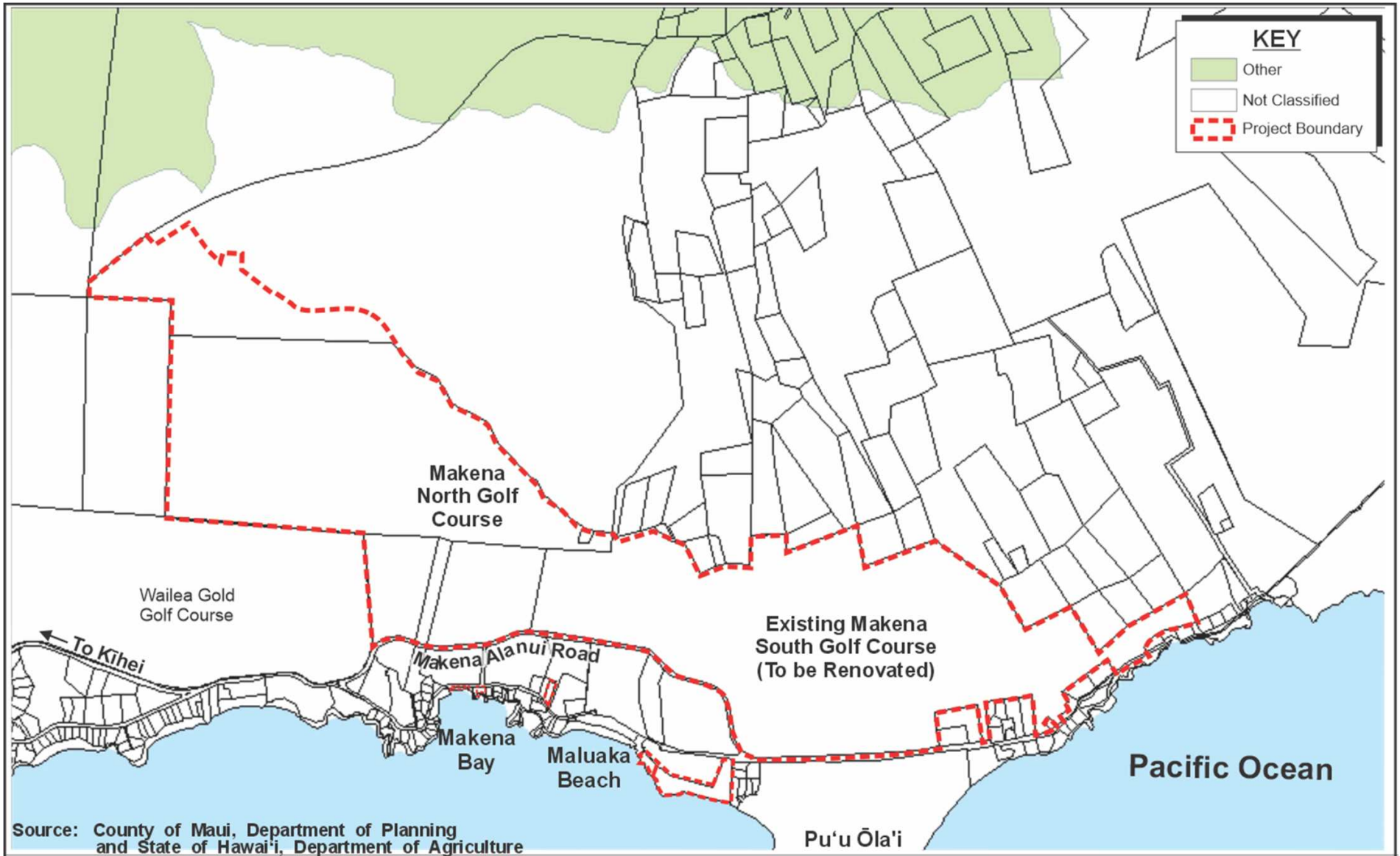


Figure 10

Mākena Mauka

Agricultural Lands of Importance to the State of Hawai'i

0 1125 Feet
562.5 2250

Prepared for: AREG AC Makena Propco LLC

MUNEKIYO HIRAGA

ATCMakena/Makena MP EIS 2100/Applications/Figures/ALISH



Figure 11

Mākena Mauka

Land Study Bureau Map

1125
0 Feet
562.5 2250

Prepared for: AREG AC Makena Propco LLC

MUNEKIYO HIRAGA

ATCMakena/Makena MP EIS 2100/Applications/Figures/LSB

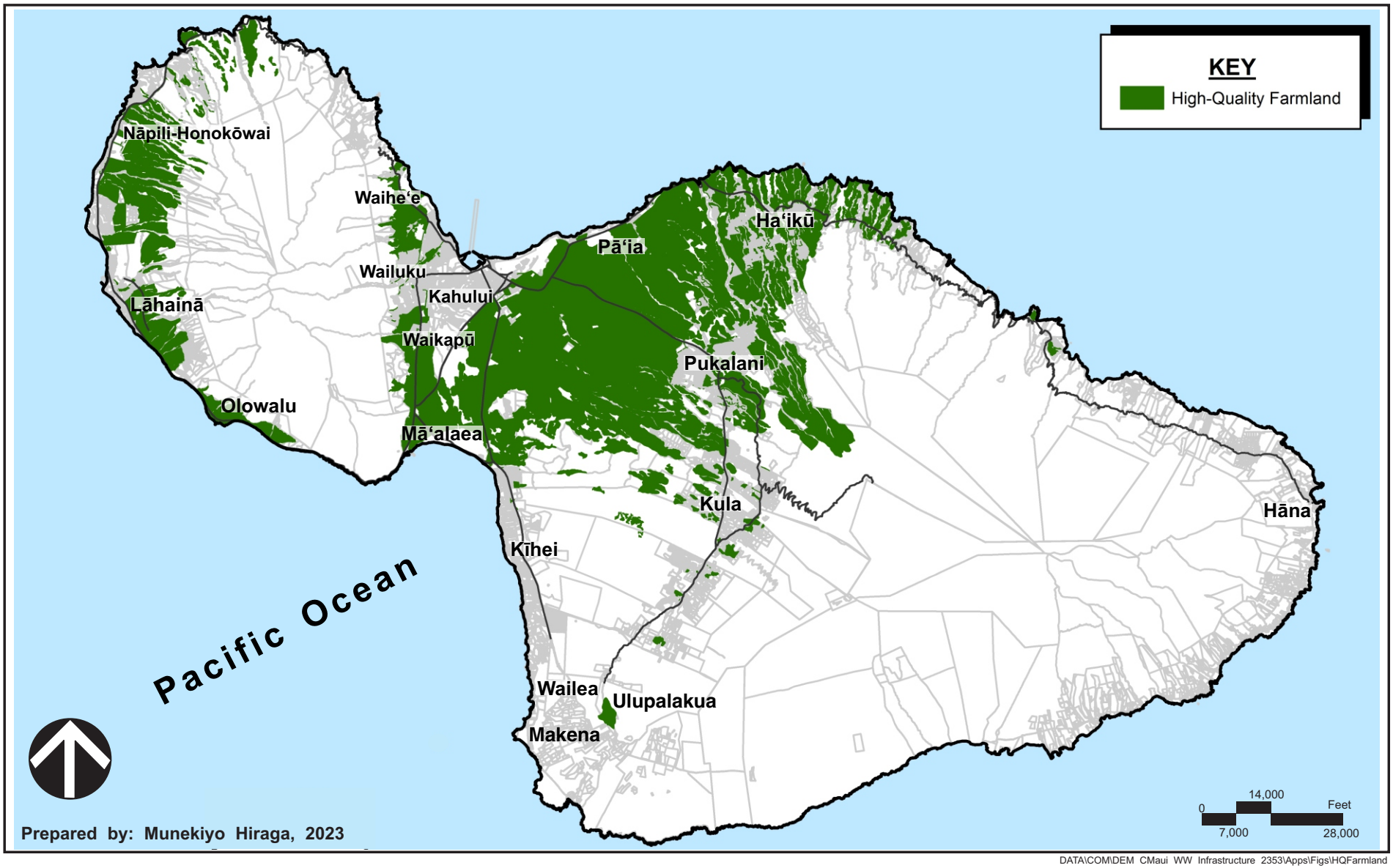


Figure 12

Mākena Mauka

High-Quality Farmland, Maui

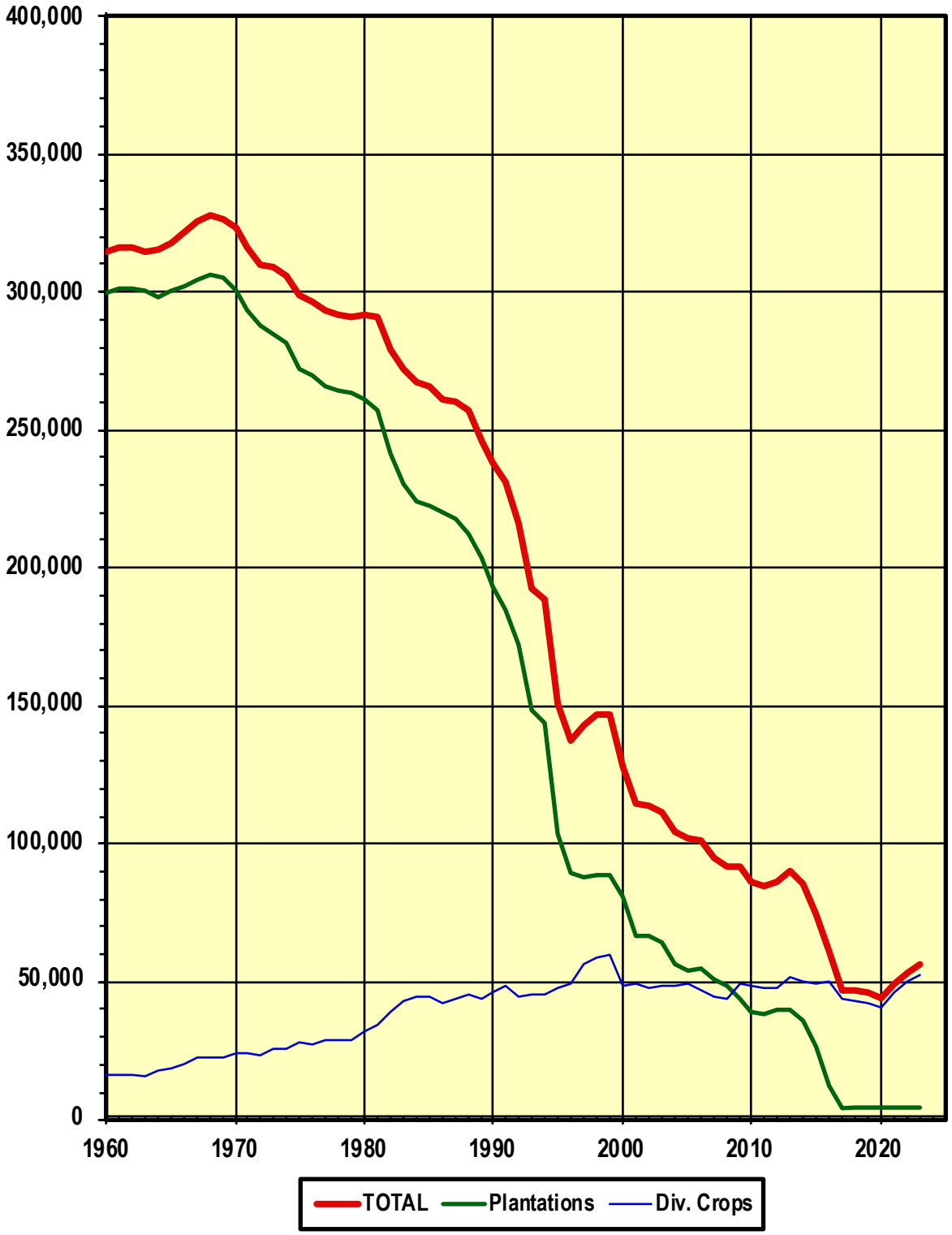


Figure 13. Acreage in Crop, Hawaii: 1960 to 2023

APPENDIX

STATE AND COUNTY GOALS, OBJECTIVES, POLICIES AND GUIDELINES RELATED TO AGRICULTURAL LANDS

1. HAWAI'I STATE CONSTITUTION (Article XI, Section 3):

> …to conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency and assure the availability of agriculturally suitable lands…

2. HAWAI'I STATE PLAN (Chapter 226, Hawaii Revised Statutes, as amended):

Section 226-7 Objectives and policies for the economy--agriculture.

(a) Planning for the State's economy with regard to agriculture shall be directed towards achievement of the following objectives:

(1) Viability in Hawaii's sugar and pineapple industries.

(2) Growth and development of diversified agriculture throughout the State.

(3) An agriculture industry that continues to constitute a dynamic and essential component of Hawaii's strategic, economic, and social well-being.

(b) To achieve the agricultural objectives, it shall be the policy of the State to:

(2) Encourage agriculture by making best use of natural resources.

(10) Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs.

(16) Facilitate the transition of agricultural lands in economically nonfeasible agricultural production to economically viable agricultural uses.

Section 226-103 Economic priority guidelines.

(c) Priority guidelines to promote the continued viability of the sugar and pineapple industries:

(1) Provide adequate agricultural lands to support the economic viability of the sugar and pineapple industries.

(d) Priority guidelines to promote the growth and development of diversified agriculture and aquaculture:

(1) Identify, conserve, and protect agricultural and aquacultural lands of importance and initiate affirmative and comprehensive programs to promote

economically productive agricultural and aquacultural uses of such lands.

(10) Support the continuation of land currently in use for diversified agriculture.

Section 226-104 Population growth and land resources priority guidelines.

(b) Priority guidelines for regional growth distribution and land resource utilization:

(2) Make available marginal or non-essential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district.

3. AGRICULTURAL STATE FUNCTIONAL PLAN (1991)

(Functional plans are guidelines for implementing the State Plan. They are approved by the Governor, but not adopted by the State Legislature.)

Objective H: Achievement of Productive Agricultural Use of Lands Most Suitable and Needed for Agriculture.

Policy H(2): Conserve and protect important agricultural lands in accordance with the Hawaii State Constitution.

Action H(2)(a): Propose enactment of standards and criteria to identify, conserve, and protect important agricultural lands and lands in agricultural use.

Action H(2)(c): Administer land use district boundary amendments, permitted land uses, infrastructure standards, and other planning and regulatory functions on important agricultural lands and lands in agricultural use, so as to ensure the availability of agriculturally suitable lands and promote diversified agriculture.

4. COUNTY OF MAUI 2030 GENERAL PLAN, COUNTYWIDE POLICY PLAN (2010)

Countywide goals, objectives, policies and actions

F. Strengthen the Local Economy

Objective

2. Diversify and expand sustainable forms of agriculture and aquaculture.

Policies

b. Prioritize the use of agricultural land to feed the local population, and promote the use of agriculture lands for sustainable and diversified agricultural activities.

e. Support ordinances, programs, and policies that keep agricultural land and water available and affordable to farmers.

Implementing Actions

c. Create agricultural parks in areas distant from genetically modified crops.

J. Promote Sustainable Land Use and Growth Management

Objective

2. Improve planning for and management of agricultural lands and rural areas.

Policies

a. Protect prime, productive, and potentially productive agricultural lands to maintain the islands' agricultural and rural identities and economies.

c. Discourage developing or subdividing agriculturally designated lands when non-agricultural activities would be primary uses.

Implementing Actions

a. Inventory and protect prime, productive, and potentially productive agricultural lands from competing non-agricultural land uses.

5. MAUI ISLAND PLAN, GENERAL PLAN 2030 (2012)

Core Values

E. Preserve rural and agricultural lands and encourage sustainable agriculture.

Agricultural Lands

Goal

7.1 Maui will have a prosperous agricultural industry and will protect agricultural lands.

Objective

7.1.1 Significantly reduce the loss of productive agricultural lands.

Policies

7.1.1.a Allow, where appropriate, the clustering of development on agricultural lands when approved as a CSD [Conservation Site Design] plan or similar approval mechanism.

7.1.1.b Require, where appropriate, the review and approval of CSD plans prior to the subdivision of agricultural land.

7.1.1.c Discourage developing or subdividing productive agricultural lands for residential uses in which the residence would be the primary use and any agricultural activities would be secondary uses.

7.1.1.e Focus urban growth, to the extent practicable, away from productive and important agricultural lands.

7.1.1.f Strongly discourage the conversion of productive and important agricultural lands (such as sugar, pineapple, and other produce lands) to rural or urban use, unless justified during the General Plan update, or when other overriding factors are present.

7.1.1.h Provide incentives for landowners to preserve and protect agricultural lands from development through the use of TDR/PDR, tax credits, easement programs, or similar means.

7.1.1.j Require all major developments adjacent to agricultural lands to provide an appropriate and site-specific agricultural protection buffer as part of a required site plan.

Directed Growth Plan

Rural Growth Area, Policies

8.2.d All development within rural growth areas should avoid encroachment upon prime agricultural land.

Wailuku-Kahului

As shown in Figure 6, Pu‘unani is within the Growth Area for Wailuku, with a portion within the Urban Boundary and a portion within the Rural Boundary.

6. COUNTY OF MAUI, KIHEI-MĀKENA COMMUNITY PLAN (1998)

B. Goals, Objectives, Policies and Implementing Actions

LAND USE

Objectives and policies

p. Prevent urbanization of important agricultural lands.

ECONOMIC ACTIVITY

Objectives and policies

e. Provide for the preservation and enhancement of important agricultural lands for a variety of agricultural activities, including sugar cane, diversified agriculture and aquaculture.

7. REFERENCES

Act 25, S.B. No. 1158, April 15, 1993.

County of Maui, Planning Department, Long Range Division. *Maui Island Plan, General Plan 2030.* December 28, 2012.

County of Maui. *County of Maui 2030 General Plan, Countywide Policy Plan.* Adopted by Ordinance No. 3732, effective on March 24, 2010.

Hawaii Department of Agriculture. *The Hawaii State Plan: Agriculture, State Functional Plan*. 1991.

Maui County Council. *Kīhei-Mākena Community Plan.* 1998.

State of Hawaii, Office of State Planning, Office of the Governor. *The Hawaii State Plan.* 1991.

WATER QUALITY ASSESSMENT REPORT

APPENDIX K

Mākena Golf & Beach Club
Water Quality Assessment for Mākena Mauka Project

June 2025

June 20 2025 ***FINAL*** *AECOS* No. 1602

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Executive Summary

Marine water quality monitoring has been conducted in Makena nearshore waters continuously since 1998 (Marine Research Consultants {MRC} 1998 – 2017 and AECOS 2018 – current). Monitoring by MRC identified groundwater intrusion with elevated nutrients (primarily nitrate+nitrite) relative to background ocean concentrations at nearshore sites along two transects. The MRC reports listed irrigation with R1 water from the Makena Wastewater Reclamation Facility (WWRF) as a potential source of this subsidy. The *AECOS* monitoring program involved random sampling events that included all four daily tidal conditions. A few nitrate+nitrite subsidies were identified at the same two nearshore coastal areas identified by MRC. No offshore areas subsidies have been identified. A comparison of all MRC and *AECOS* mean salinities, ortho-phosphate, and nitrate+nitrate values demonstrate major differences at nearshore stations 2 and 10 meters from shore and general agreement at distances of 50 and 100 meters from shore.

The Project has the potential to impact the marine water quality through increased areas of irrigation and fertilization (particularly to the renovated South Golf Course) and the increased impervious areas within the development creating more opportunities for stormwater runoff to migrate to coastal waters if not properly managed. These issues are addressed in this report.

We recommend:

- the addition of a water quality transect along Big Beach to monitor possible water quality impacts from the South Golf Course:

Introduction

AREG AC Mākena Propco LLC doing business as Mākena Golf & Beach Club (MG&BC) Owner (Applicant) proposes Mākena Mauka (the Project; Figure 1) a low-density master-planned residential community that will offer market rate housing together with residential workforce housing, with a mixture of rural and single-family lots and multi-family residential units, within an area that has largely been planned for such uses for decades. The project will incorporate the existing 18-hole Mākena North Golf Course and the 18-hole Mākena South Golf Course (to be renovated as part of the land plan), together with a community gathering place, hiking trails, programs to support connectivity, walking, bicycling, and golf cart paths, beach parking for the public, areas reserved for conservation/open space, and areas reserved for public beach access, The Applicant's current vision for the Mākena Mauka land plan includes 652 housing units, including 109 onsite residential workforce housing units, along with approximately 135,000 sf of operational support buildings, which include golf maintenance, staff offices, restaurants, back of house, golf operations and other uses; within the approximately 1,043.71-acre total project area (TMK) Nos. (2)2-1-005:108, (2)2-1-006:036 and -57, (2)2-1-007:068, 092 and 093, (2)2-1-008:078, 079, 081, and 090, and (2)2-1-031:036(Por.)):which includes approximately 473 acres of parcels proposed for residential development (Munekiyo Hiraga, 2024).

The purpose of this report is to review water quality along the coastal nearshore waters off the general Project area and to assess potential effects of the Project on water quality of these Makena coastal waters. Based on our experience, exceeding state criteria for nitrogen, phosphorus, turbidity, and chlorophyll α in Hawaiian nearshore coastal waters is more the common occurrence than the exception. Nutrient enrichment of a specific coastal water body can occur from a variety of causes:

1) groundwater intrusion[1];
2) resuspension of bottom sediments;
3) biological excretion products and biological recycling processes;
4) longshore current transport from other areas; and
5) land surface runoff during storm events (includes enhanced input from stream freshets).

[1] Groundwater, in comparison to marine receiving water, is characterized by very low salinity and typically high soluble nutrient content.

Turbidity is typically elevated by land runoff and by resuspension of bottom sediments due to wind and wave action in shallow nearshore water. Chlorophyll α values can increase in shallow areas due to land runoff and groundwater seepage, providing nutrient sources.

State water quality criteria account for these typical influences by differentiating between "open coastal waters" (nearshore, between the shore and the 183-m [600-ft] depth contour) and "oceanic waters" (offshore, beyond the 183-m depth contour) and distinguishing between "wet" and "dry" coasts (HDOH, 2021, §11-54-06). An exception is made for waters off the Kona coast where special criteria have been developed to account for the considerable groundwater input there (HDOH, 2021, §11-54-06). The majority of Hawaiian coastal waters, including those off Maui, are subject to criteria that were developed nearly 50 years ago and are in need of re-evaluation.

Potential project-related impacts to water quality can arise from:

1) surface runoff and erosion from storm events during Project construction;
2) increased storm-related runoff following build-out due to an increase in impervious surface areas as a result of development;
3) infiltration of nutrients[2] to groundwater from landscape fertilization; and/or
4) infiltration of nutrients to groundwater from use of reclaimed Mākena wastewater reclamation facility (WWRF) R-1 water to irrigate golf course turf.

Existing Coastal Water Quality

Waters south from Nāhuna Point, including Makena Bay and Maluaka Bay (Figure 2), are designated as "Class A, open coastal waters" in the State of Hawai'i, Water Quality Standards by Hawai'i Department of Health (HDOH, 2021) and are included on the HDOH 2024 list of impaired waters in Hawai'i—prepared under Clean Water Act §303(d) (HDOH, 2024)—for nitrate+nitrite, ammonia, total nitrogen, and turbidity. These nearshore waters are listed as a "Category 3" water body, meaning that "there is [sic] insufficient available data and/or information to make a use support determinations [sic]" and as a "Category 5" water body, meaning that "[available data and/or information indicate that at least one or more designated use is not being supported or is threatened, and a Total Maximum Daily Load Study (TMDL) may be required.]

[2] "Nutrients" are nitrogen (nitrate+nitrite) and phosphorus (ortho-phosphate) compounds that promote plant growth, including algal growth in the marine environment. These chemicals are the main ingredients in applied fertilizers.

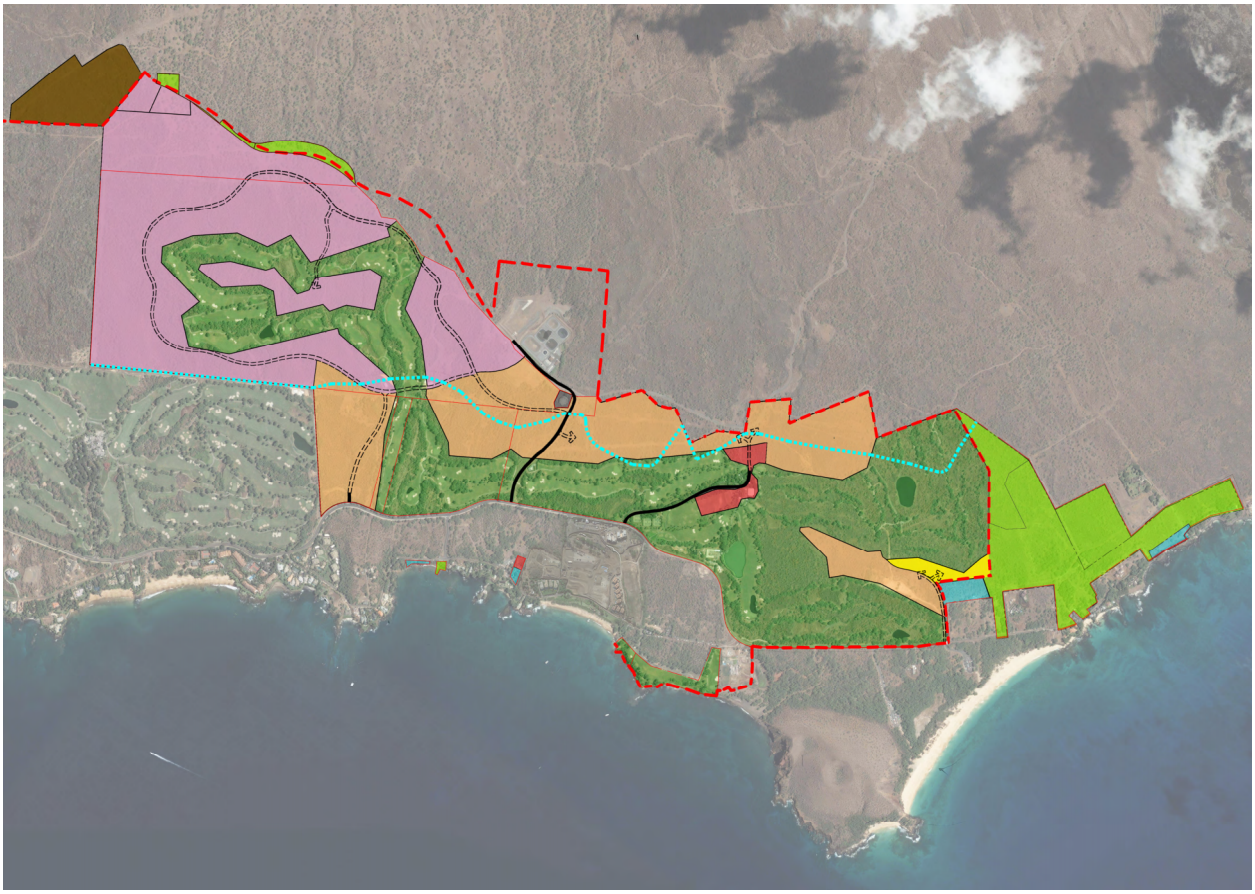

Figure 1. Mākena Mauka Project location map (Munekiyo Hiraga, 2024).

A water quality sampling program has been in continuous operation at MG&BC since 1998 (MRC 2009-2017; AECOS 2018-current) to assess the nearshore waters for the state water quality criteria constituents. The first sampling program by Marine Research Consultants (MRC) included three sampling transects located in nearshore waters just offshore of the resort. A fourth transect was located south of Puʻu Olai in a minimal human-use area to serve as a control (Figure 2). Transect 3A (renamed Transect M-3 in this report), located just offshore of the 16th fairway of the South Golf Course, was added to the sampling program in 2007. This was an alternative to Transect 3 which consistently demonstrated no groundwater input to nearshore coastal waters. Water quality data for MRC transects 1, 2, and 4 from 2009-2017are included in this report.

MRC sampling stations were located along each transect at 0 m, 2 m, 5 m, 10 m, 50 m, 100 m and 150 to 200 m offshore. The specific nearshore location of each transect was determined by refractometer analysis during each sampling event to identify the lowest salinity levels near shore. Transects extended seaward at 90 degrees to the coastline (Fig 2). Surface samples (within 20 centimeters of the surface) were collected at all stations.

In addition, samples were collected at one meter above the bottom at stations 5 m from the shore and seaward.

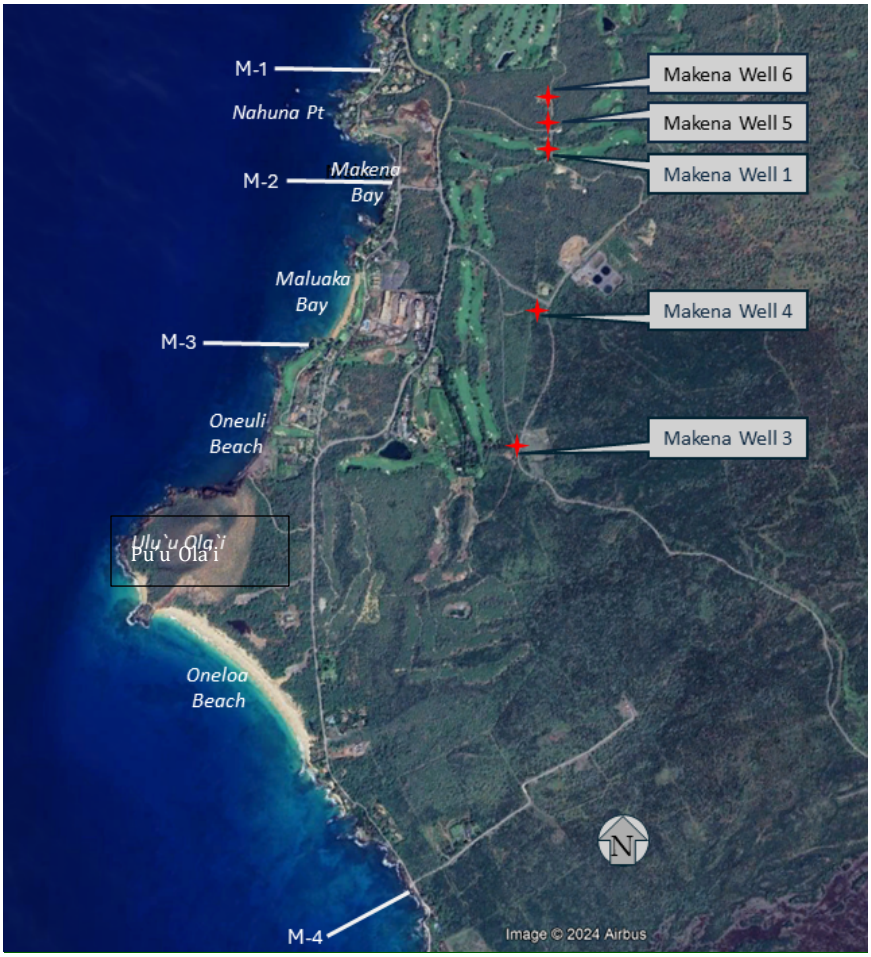

Figure 2. Location of water quality monitoring transects M-1, M-2, M-3, and M-4) and irrigation water supply wells at MG&BC.

Sampling events typically occurred twice a year: once during the Hawai'i water quality standards "wet" season between November and April and again during the "dry" season between May and October (HDOH, 2021). MRC collected Mākena well samples during several sampling events between September 2009 and November 2017 (MRC, 2017). Mākena well samples were analyzed for salinity, temperature, pH, ammonium nitrate+nitrite, ortho-phosphate, total nitrogen, and total phosphorus.

AECOS started Mākena water quality sampling in June 2018 with a revised program and schedule. Quarterly surface samples are collected each year along four transects established by MRC: M-1, M-2, M-3 (termed 3A by MRC), and M-4. Samples are collected at 2 m, 10 m, 50 m and 100 m from shore. No samples have been collected at depth as

coastal surface samples typically represent the best estimate of both groundwater and surface runoff to coastal waters. These fresh waters are less dense than sea water and fan out over the coastal surface, slowly mixing with deeper waters.

MRC and *AECOS* field teams both measured the same water quality parameters: temperature, salinity, pH, dissolved oxygen, nitrate+nitrite, ammonium, total nitrogen, ortho-phosphate, total phosphorus, silicates, turbidity, and chlorophyll α. Water quality parameters of particular interest for the purposes of this report are nutrients (inorganic nitrogen [nitrate+nitrite], and ortho-phosphate) and salinity. Nutrient enrichment of nearshore coastal waters from groundwater intrusion and stormwater runoff can enhance nuisance algae production (DLNR, 2016) and have a harmful impact on corals and other biological components in these waters (Laws et al., 2004; MRC, 2011; *AECOS*, 2016). Changes in salinity can result from stormwater runoff and groundwater seepage to nearshore coastal waters.

Table 1. Analytical methods and instruments used for water quality analyses reported herein.

Analysis	Method	Reference	Instrument
Temperature	SM 2550B	SM (2017)	YSI ProPlus DO meter thermistor
Salinity	SM 120.1	SM (2017)	Accument AB200
pH	SM 4500H+	SM (2017)	pH pHep HANNA meter
Dissolved Oxygen (DO)	SM 4500-O G	SM (2017)	YSI Model 550 DO meter
Turbidity	EPA 180.1	USEPA (1993b)	Hach 2100Q Turbidimeter
Ammonium (NH_4)	EPA 349	USEPA (1997a)	Seal AA3 Auto Analyzer
Nitrate+Nitrite (NO_3+NO_2)	EPA 353.2	USEPA (1993a)	Seal AA3 Auto Analyzer
Silicates	EPA 360.0	USEPA (1997c)	Seal AA3 Auto Analyzer
Total Nitrogen (TN)	EPA 353.4	USEPA (1993a)	Seal AA# Auto Analyzer
Ortho-Phosphate (PO_4)	EPA 365.5	USEPA (1997b)	Seal AA3 Auto Analyzer
Total Phosphorus (TP)	EPA 365.5	USEPA (1997b)	Seal AA3 Auto Analyzer
Chlorophyll *α* (Chl. *α*)	SM-10200	SM (1998)	Turner Fluorometer

Nitrogen and phosphorus values in most water quality surveys are typically calculated as geometric means to comply with Hawai'i state water quality regulations (HDOH, 2021). We will be using both averages and geometric mean estimates in this report as we are interested in evaluating potential impacts to Mākena nearshore waters. Average values are typically greater than geometric mean results.

The irrigation wells for golf course and landscaping, located mostly east of the golf course (Figure 2), were monitored for selected water quality parameters during both the MRC program and during the AECOS program (Table 2). Makena wells numbered 1, 3, 4, 5, and 6 are generally used to pump irrigation water into Pond 10. Granular fertilizer is distributed along the golf course and landscaping areas and irrigation occurs from Pond 10 based on environmental water requirements.

Table 2. Mean nitrate+nitrite and ortho-phosphate concentrations in Mākena groundwater.

Statistic	NO_3+NO_2 (µg/L)	PO_4 (µg/L)	Salinity (ppt)
Average	**1700**	**67**	**1.32**
Range	1400 - 1980	18 - 88	1.20 - 1.44
Std. error	*45*	*3.5*	*0.02*

R-1 water from the Mākena WWRF was pumped to Pond 10 until 2016 when the resort was closed. Mākena WWRF has been operating on a low-level basis since. There have been no R-1 water discharges to Pond 10 since 2016. Effluents are presently cleared by evaporation in the Mākena wastewater recovery facility (WWRF) oxidation ponds. The MRC monitoring program measurements were made during WWRF operation. The AECOS program has not measured water quality during any WWRF supply to Pond 10.

MRC Monitoring Program

MRC established transects in locations specifically to capture nearshore groundwater discharges to Makena coastal waters. During each sampling event, refractometers were used to identify specific areas of lowest salinity, which were then used as the 0 m distance from shore station along each transect. The average results and ranges for selected data for the Station 0 m to Station 5 m distance from shore are shown by transect in Table 3.

Notice that there were distinct differences between each transect for these parameters. Ortho-phosphate and nitrate+nitrite values were elevated along Transect M-1 and M-3, while salinity values were low. Also, ortho-phosphate and nitrate+nitrite values decreased rapidly between stations along Transect M-1 and M-3 compared with Transect M-2 and M-4. Salinity values, however, increased rapidly along Transect M-1 and M-3 compared with Transect M-2 and M-4 where there was little increase in salinity values.

Table 3. A summary of MRC average Mākena data at 0 m, 2 m, and 5 m stations between June 2009 and December 2017 during 15 sampling events.

Transect	DFS† (m)	Statistic	PO_4 (µg/L)	NO_3+NO_2 (µg/L)	Salinity (ppt)
M-1	0	average	**16**	**1115**	**24.71**
		range	1 - 48	9 - 3026	7.14 - 35.13
	2	average	**13**	**856**	**28.02**
		range	2 - 47	14-2967	15.12 - 35.12
	5	average	**6**	**367**	**31.78**
		range	1 - 14	1 - 960	24.77 - 34.87
M-2	0	average	**6**	**136**	**33.00**
		range	1 - 15	7 - 519	25.92 = 35.00
	2	average	**7**	**96**	**33.49**
		range	3 - 9	9 - 222	34.45 - 35.00
	5	average	**5**	**66**	**33.91**
		range	1 - 8	8 - 266	32.43 - 34.96
M-3	0	average	**44**	**1983**	**20.47**
		range	1 - 88	18 - 4515	3.4+ - 35.04
	2	average	**35**	**1408**	**25.41**
		range	4 - 93	18 - 4146	6.61 - 35.05
	5	average	**14**	**484**	**31.37**
		range	1 - 51	12 - 2099	21.17 - 35.07
M-4	0	average	**6**	**129**	**32.45**
		range	1 - 22	5 - 707	24.96 - 35.19
	2	average	**7**	**119**	**32.78**
		range	2 - 15	6 - 490	28.17 - 35.20
	5	average	**5**	**59**	**33.64**
		range	1 - 11	4 - 226	31.04 - 35.19

Distance From Shore

Notice the large changes in ortho-phosphate and nitrate-nitrite concentrations for both parameters between 20 and 30 ppt salinity and the lower change in concentrations between 30 and 35 ppt salinity. These changes are characteristic of conditions very close to shore while much smaller changes are observed in coastal waters as distance from shore increases. Nitrate+nitrite values are more closely related to changes in salinity, compared with ortho-phosphate values. Ortho-phosphates are likely to adsorb as well as regenerate from particulate matter in coastal waters.

The MRC nearshore stations demonstrate nitrate+nitrite levels that were elevated relative to typical groundwater concentrations with low salinities along Transect M-1 and M-3 indicating subsidy values from fertilization of the golf course holes landward of these two transects. Figure 3 lists all MRC samples collected between 0 m and 5 m at Transect M-1 and Transect M-3. There are several values exceeding the groundwater average of 1700 µg/L of nitrate+nitrite and represent a distinct subsidy to groundwater nitrate+nitrite concentrations. There is also a strong relation between salinity and nitrate+nitrite concentration by R^2 the coefficient of determination, indicating that 94.5 percent of changes in nitrate+nitrite concentrations are related to changes in salinity.[3]

The MRC nearshore stations demonstrate ortho-phosphate levels that were elevated relative to groundwater concentrations and low salinities along Transect M-1 and M-3 indicating subsidy values from fertilization of the golf course holes landward of these two transects (Figure 4). Subsidy levels for ortho-phosphate were smaller than for nitrate+nitrite and the R determination was somewhat smaller as ortho-phosphate is more reactive by adsorbing to and regenerating from particulate matter.

[3] The coefficient of determination or goodness of fit (R^2 value) in these graphs is an estimate of how much of the variability in mean nutrient results can be attributed to sample salinity. The R^2 values and best-fit lines are shown for the historic data sets.

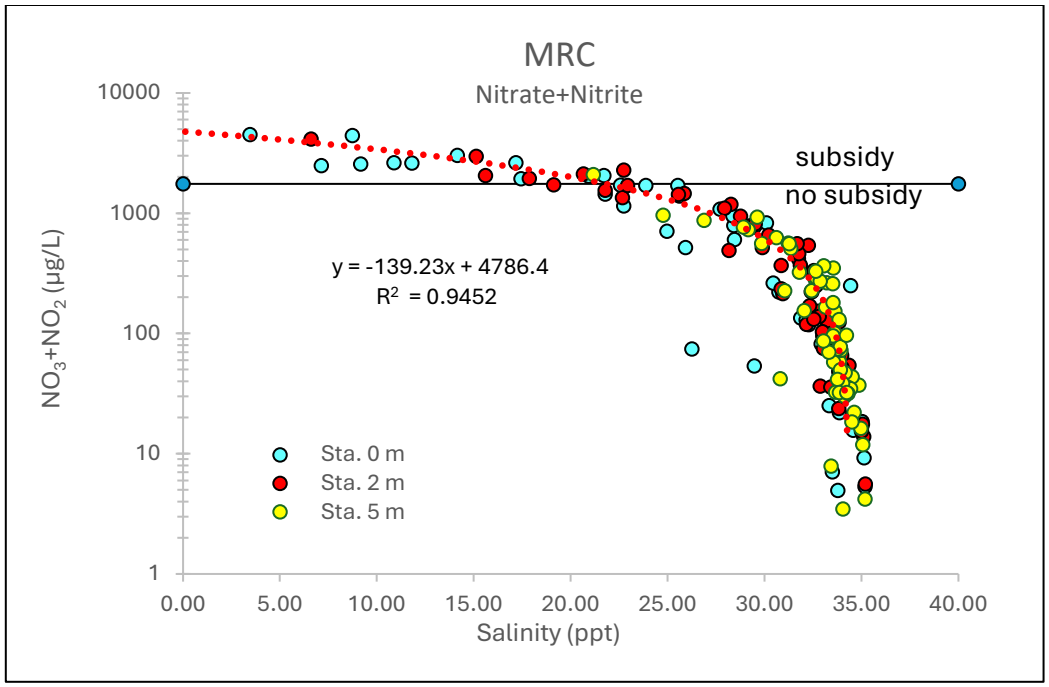

Figure 3. All MRC nitrate+nitrite data points at stations 0 m, 2 m, and 5 m distances from shore.

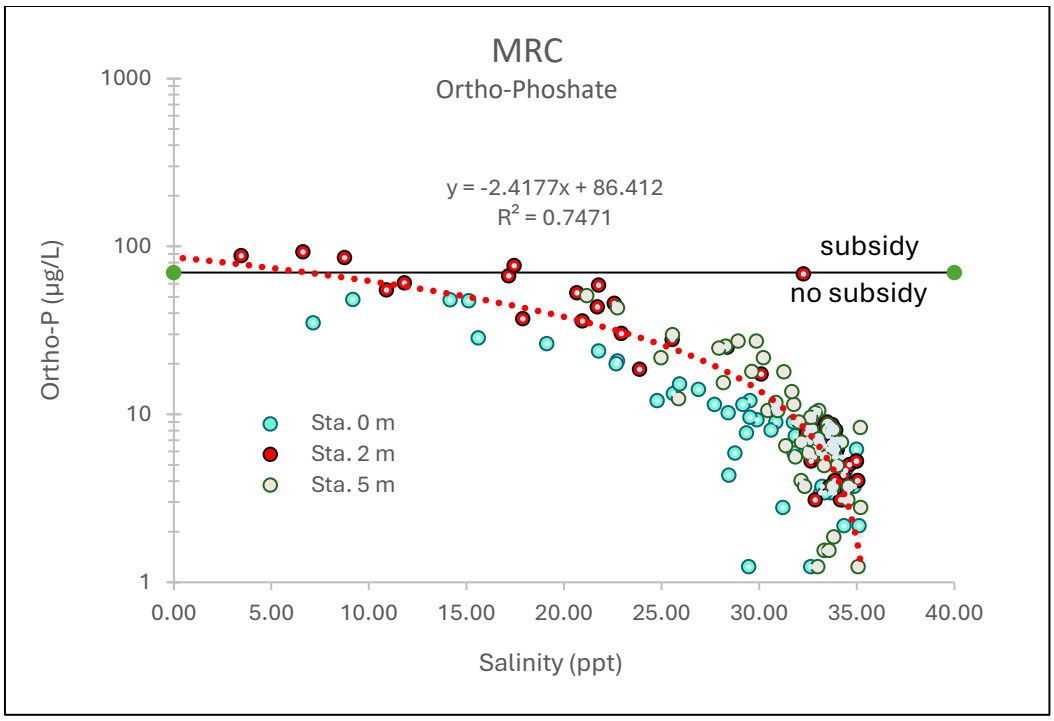

Figure 4. All MRC ortho-phosphate data points at stations 0 m, 2 m, and 5m distances from shore.

Makena golf holes directly landward and inland of some Wailea Golf Course sites at M-1 represent less than 10 acres of area, while the golf course just north of Mākena to Wailea Golf Club Drive is about 140 acres in area. Thus, nitrate+nitrite concentrations along Transect M-1 nearshore waters may be influenced by drainage from both Mākena and the Wailea golf course.

A single fairway on the South Golf Course, Fairway 16, is located just mauka of Transect M-3, where elevated nitrogen was detected near the shoreline (Fig. 3). There is little discharge of elevated nutrients nearshore at M-4. Any nutrient increases at Transect M-4 may be due to nearshore wave action and resuspension of bottom sediments and likely does not exceed groundwater levels, because there is no landward fertilization. MRC nitrate-nitrite concentrations at Transect M-2 did not exceed the groundwater levels for both nutrients.

AECOS Monitoring Program

AECOS' Mākena sampling program began in June 2018 at the following MRC transects: M-1, M-2, M-3 (MRC's 3A), and M-4. Surface samples were collected at stations located 2 m, 10 m, 50 m, and 100 m distance from shore. We sample on a quarterly basis to provide annual mean calculations for yearly comparisons. The primary difference between MRC and *AECOS* programs is that we sample under ongoing coastal conditions, while MRC emphasized low tidal sampling events. Thus, the MRC sampling occurred during ideal groundwater discharge conditions; i.e., low tide. Low tides exhibit maximum groundwater nutrient levels mixing with minimal nearshore water levels. The *AECOS* program samples during a broad view of existing conditions in Makena coastal waters for all tidal conditions.

Average estimates for nitrate+nitrite, ortho-phosphate, and salinity for both MRC (2009 – 2017) and *AECOS* (2018 – current) are shown in Table 4. Nitrate+nitrite and, to a lesser degree, ortho-phosphate geometric mean levels for both MRC and AECOS decrease with distance from shore. Nitrate+nitrite levels along Transect M-1 and M-3 are elevated compared with Transect M-2 and M-4 averages. Means for Nitrate+nitrite, ortho-phosphate and salinity for both data series become more closely matched to each other with distance from shore.

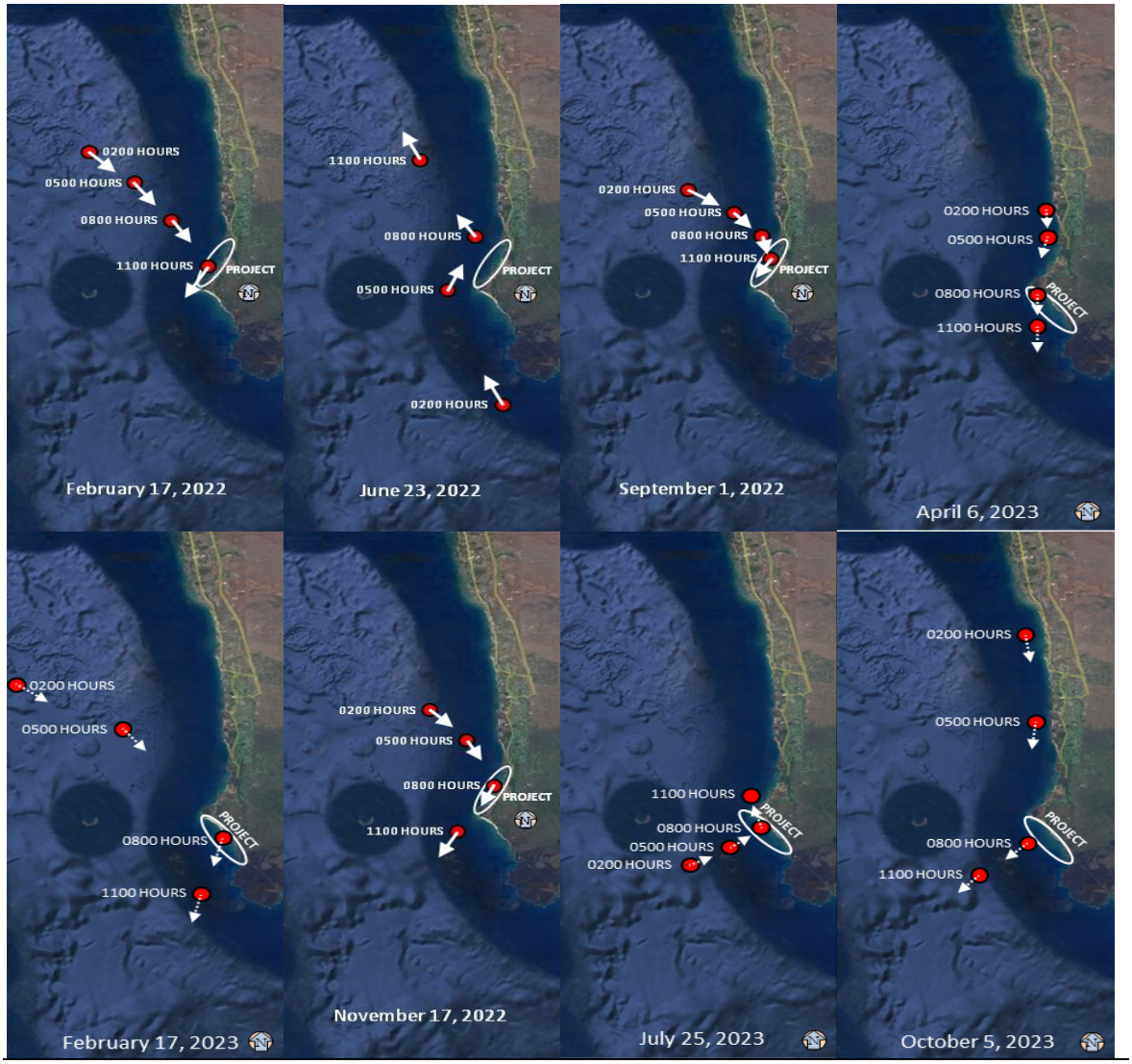

Figure 5. Estimated nearshore currents prior to sampling (0200 & 0500 hours), during sampling (0800 hours), and post-sampling (1100 hours) based on PacIOOS calculations (PacIOOS, 2025).

Nitrate+nitrite and ortho-phosphate distributions at all four transects for all MRC and *AECOS* sampling events are shown in Figure 5 and 7 at 2 m, 10 m, 50 m, and 100 m distance from shore. MRC Nitrate+nitrite and ortho-phosphate values demonstrate larger changes between low salinity values and smaller changes between higher salinities. *AECOS* values for both parameters demonstrate small changes in salinity having been sampled during a number of tidal cycles. Table 4 shows no nutrient interaction with low salinities and demonstrates a regular increase in MRC nitrate+nitrite levels due to low tidal sampling effects and a more clumped distribution of nitrate+nitrite levels for *AECOS* samples.

Table 4. Station by station comparison of MRC (n = 15— 2009-2017) and AECOS (n = 23—2018-2023) nutrient geometric means and salinity averages.

Transect	DFS† (m)	Nitrate+Nitrite (µg/L)		Ortho-Phosphate (µg/L)		Salinity (ppt)	
		MRC	AECOS	MRC	AECOS	MRC	AECOS
M-1	2	458	41	9	3	28.02	34.04
	10	85	38	4	3	33.66	34.15
	50	32	32	2	3	34.53	34.27
	100	13	21	3	2	34.69	34.45
M-2	2	79	18	6	4	33.49	34.20
	10	26	15	4	4	34.43	34.20
	50	19	15	4	3	33.41	34.29
	100	5	11	4	2	34.74	34.49
M-3	2	947	22	27	3	25.41	34.04
	10	101	20	5	3	33.45	34.36
	50	36	15	4	2	34.31	34.56
	100	15	10	4	2	34.69	34.64
M-4	2	72	19	6	3	32.78	34.30
	10	13	16	4	3	34.54	34.35
	50	9	13	3	2	34.62	34.62
	100	5	9	3	2	34.71	34.73

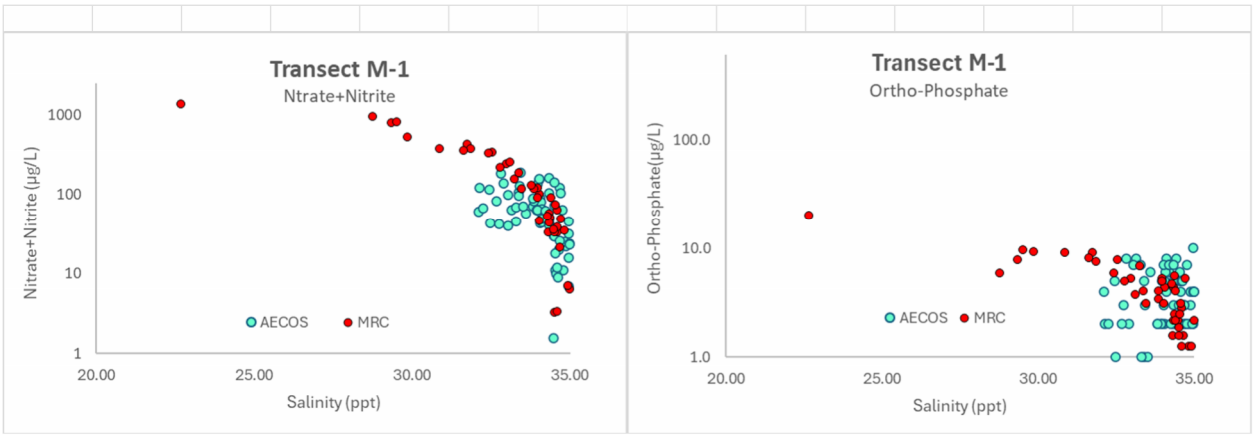

Figure 5. Nitrate+nitrite and ortho-phosphate distributions at Transect M-1 during MRC (2009 – 2017) and AECOS (2018 – 2023) sampling events.

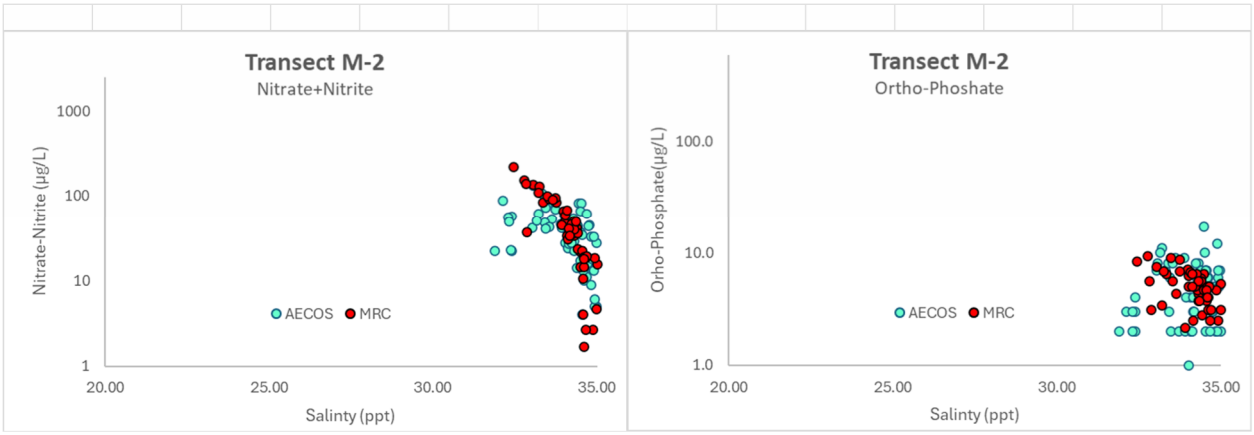

Figure 6. Nitrate+nitrite and ortho-phosphate distributions at Transect M-2 during MRC (2009 – 2017) and AECOS (2018 – 2023) sampling events.

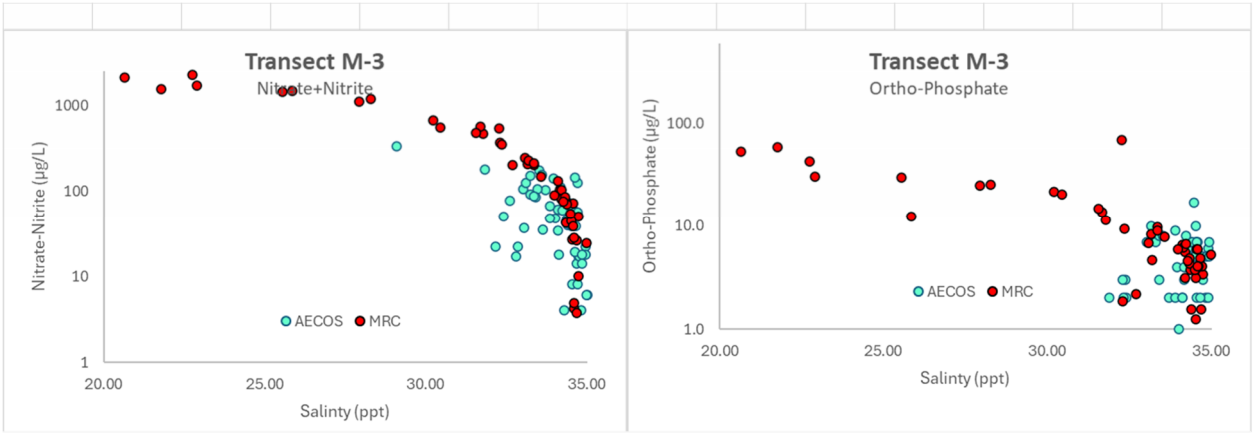

Figure 7. at+nitrite and ortho-phosphate distributions at Transect M-3 during MRC (2009 – 2017) and AECOS (2018 – 2023) sampling events.

Hui O Ka Wai Ola has been collecting water quality samples at stations across Maui since 2016. summary of the west Maui 25 stations is shown in Table 5 for average values of salinity, nitrate+nitrite, and ortho-phosphate. These stations are located between the Maalaea area and Ahihi-Kinau south of Mākena. These data have been sorted from high to low nitrate+nitrite average concentrations. The greyed sites are located offshore of Mākena. It is apparent that salinity values tend to increase from north to south, while nitrate+nitrite concentrations, and to a lesser extent ortho-phosphate concentrations tend to decrease from north to south. These data give a reasonable comparison of Makena nearshore water conditions for these parameters in the western coastal waters of Maui because of the random monitoring plan that includes all tidal conditions.

Table 5. Hui O Ka Wai Ola west Maui average water quality data for salinity, nitrate+nitrite, and ortho-phosphate.

Sampling Sites	**Salinity (ppt)**	**NO_3+NO_2 (µg/L)**	PO_4 (µg/L)
Cove Park	**32.9**	**363**	**23.6**
Mai Poina 'Oe Ia'u	**33.4**	**159**	**9.6**
Maalaea Condos	**33.7**	**144**	**6.8**
Kihei Canoe Club	**34.7**	**126**	**6.6**
Kalepolepo North	**33.4**	**97**	**9.5**
Haycraft Park	**34.7**	**61**	**6.1**
Kihei South (Lipoa)	**33.5**	**59**	**8.2**
Ulua Beach	**34.9**	**48**	**5.5**
Kalama Park	**34.7**	**41**	**6.8**
Kamaole Beach	**34.9**	**35**	**6.5**
Palauea	**34.8**	**32**	**5.0**
Waipuilani Park	**33.1**	**28**	**10.0**
Mākena Landing	**34.1**	**28**	**6.5**
Sugar Beach	**34.9**	**25**	**6.4**
Poolenalena	**34.9**	**24**	**4.8**
Wailea Beach	**35.1**	**20**	**6.0**
Maluaka Beach	**34.9**	**19**	**5.0**
Oneuli	**34.9**	**18**	**6.2**
Kilohana Dr	**34.9**	**17**	**5.4**
Ahihi South	**35.0**	**15**	**7.4**
Keawekapu Beach	**35.1**	**10**	**4.6**
Ahihi North	**35.1**	**7**	**5.7**
Kealia Pond	**35.3**	**4**	**4.4**
Mākena Beach	**35.5**	**3**	**4.5**

Mākena Coastal Flow Patterns

There are direct nearshore groundwater discharges along most shoreline areas in Hawai'i. There are also flows just offshore that depend upon a number of ongoing physical conditions---including tidal events, wind conditions, waves, and geologic features. These coastal flows can change direction and speed in short periods of time. There were no ongoing flow modeling programs available in Hawai'i during the MRC sampling program. The PacI00S Regional Ocean Modeling System (ROMS) started producing coastal current information in late 2021 and provides a 7-day, 3-hourly forecast at an approximately 2.5-mile resolution. *AECOS* has been using these data since January 2022 to describe coastal flows in the Mākena area for each quarterly sampling event.

AECOS estimated nearshore flow conditions based on the ROMS model are shown in Figure 5 for 2022 and 2023. Note that these flow conditions are generally from north to south and only occasionally from south to north. There are also a range of flow rates depending upon specific environmental conditions between these sampling events.

The important feature to notice here is that these coastal flows at distances of 5 m to 10 m and further from shore can travel large distances—many meters in a few hours—while nearshore areas up to about several meters from shore may receive groundwater drainage for up to 1 m per day of possible discharge. Thus, groundwater seepage in Mākena is generally most apparent in nearshore waters, before merging with coastal flow patterns.

Other Thoughts about Coastal Water Quality

Based on our experience, exceeding state nutrient criteria—the nitrogen and phosphorus components—and criteria established for turbidity and chlorophyll α in Hawaiian nearshore coastal waters is more the common occurrence than the exception. Turbidity is typically elevated by land runoff and by resuspension of bottom sediments due to wind and wave action in shallow water near shore. State water quality criteria account for these typical influences by differentiating between "open coastal waters" and "ocean waters" and distinguishing between "wet" and "dry" coasts (HDOH, 2021, §11-54-06). An exception is made for waters off the Kona coast where special criteria have been developed to account for the considerable groundwater input there (HDOH, 2021, §11-54-06). The majority of Hawaiian coastal waters, including those off Maui, are subject to criteria that were developed nearly 50 years ago and in need of re-evaluation.

Water Supply Wells

AECOS is tracking monthly MG&BC turf fertilization amounts and irrigation rates (data provided by MG&BC) along with nutrient concentrations in the irrigation supply wells shown in Table 6 below. Mākena irrigation wells, located several hundred feet below land surface, are sampled during each quarterly sampling event.

Table 6. Annual geometric mean soluble nutrient concentrations and salinity values in well water for golf course and landscaping irrigation during *AECOS* sampling events.

Year	PO_4 (µgP/L)	NO_3+NO_2 (µgN/L)	NH_4 (µgN/L)	Salinity (ppt)
2018	48	1810	17	1.25
2019	65	1773	18	1.31
2020	73	1609	18	1.32
2021	65	1672	22	1.29
2022	63	1717	30	1.33
2023	56	1662	46	1.32
Grand Mean	**60**	**1700**	**25**	**1.32**
# of Samples	***23***	***23***	***23***	***23***

Nitrate+nitrite averages are high compared with both ortho-phosphate and ammonium in these well waters. Only nitrate+nitrite in the groundwater is likely to be detected as it seeps into nearshore marine waters where it mixes into the nearshore seawater. Ortho-phosphate and ammonium, would be diluted to non-detectable levels very near to shore.

Sources of Groundwater Nutrients in Mākena Coastal Waters

The mean distribution of nutrients, especially nitrate+nitrite, along all transects demonstrate decreasing concentrations with distance from shore, and as might be expected, are mirrored by increasing salinity offshore. This information tells us that groundwater seepage/intrusion is a source of nitrate+nitrite in the nearshore waters. The nutrients in groundwater at MG&BC have two possible origins: (1) a remote source: present in groundwater that originates upslope of the resort and that can be measured in well water; and (2) a local source: seepage of MG&BC excess irrigation water into the groundwater. Brackish water pumped from the wells is used to irrigate MG&BC grounds, the North Golf Course (NGC) and five holes of the South Golf Course (SGC). The

MG&BC grounds, the North Golf Course (NGC) and the five holes of the South Golf Course (SGC) encompass approximately 100 ac (40.5 ha) of MG&BC property. These areas are irrigated and fertilized on a regular basis using water from Makena Well 1, Makena Well 3 (Seibu Well 3), Makena Well 4 (Seibu Well 4), Makena Well 5 (Seibu Well 5) and Makena Well 6 (Seibu Well 6) (Fig. 2). Water supplied from Seibu Well 1 is used to irrigate landscape vegetation along Mākena Alanui Road.

The Mākena South Golf Course (SGC), closed in 2008, will be renovated as part of the Mākena Mauka Project. Though five of the SGC holes are still irrigated regularly, the renovated SGC will cover an area of about the size of North Golf Course once completed. It is assumed herein that fertilizer concentrations and irrigation amounts will be similar to NGC conditions.

Irrigation and Fertilizer Tracking

During normal MG&BC operations in the proposed Project, R-1 water from WWRF was pumped into Pond 10, where it mixes with well water, and then used to supply water for irrigation purposes. At the present time, the WWRF is not fully operational because MG&BC has been closed for redevelopment since 2016. Only a controlled-release nitrate+nitrite fertilizer is used to fertilize the North Golf Course turf and five holes of the South Golf Course at the present time; phosphorus-containing fertilizers are used several times a year in small quantities.

Water and nutrients not taken up by golf course turf and other vegetation during irrigation filter down through the soil to eventually reach local groundwater. We can assume that this excess irrigation water does not remix with water drawn from the wells for at least two reasons: 1) irrigation occurs mostly downslope of all wells with excess irrigation water moving seaward upon reaching groundwater; and 2) well water is drawn from a depth of 200 ft or more below ground, far below the groundwater surface. Any excess residual nutrient concentration, that is greater than average groundwater concentration, are expected to dilute as these waters seep towards nearshore coastal waters.

Most ortho-phosphate in irrigation water not taken up by the turf grasses is adsorbed to subsurface soil particles (Busman et al., 2002; Laws et al., 2004) and effectively lost to the groundwater nutrient pool. Nitrogen on the other hand, may change form in subsurface soils and groundwater, but is typically present as soluble nitrate+nitrite in groundwater. Groundwater movement is towards the ocean shore, so eventually this water with its soluble nutrients enters nearshore waters, resulting in nutrient enrichment or subsidy.

We track turf and landscape fertilization/irrigation data provided by MG&BC monthly. Nutrients are measured in irrigation supply wells on each quarterly sampling event, and

averaged over the year, are assumed to be representative of the nutrient concentration of the irrigation water being applied. However, most of the nutrients are taken up by turf grass and other plants (or otherwise lost). A U.S. Geologic Survey report estimates that only about 20% (as an average for nitrogen fertilizer applied on Maui golf courses) actually reaches the groundwater (USGS, 2018) and we refer to this as the "residual" or "subsidy" concentration.

Table 7 presents a comparison of estimated groundwater "residual" concentrations with nearshore (2-m stations) nitrate+nitrite concentrations. In this table, the residual is given for each monitoring year as an annual mean (n=16). The residual concentrations at each 2-m station are calculated as expected concentrations utilizing the inverse relationship that exists between salinity and nitrate+nitrite in these waters.

Table7. Estimated arithmetic means for annual nitrate+nitrite fertilizer residual amounts and calculated total daily nitrate+nitrite subsidy at 2 m stations on monitoring transects.

	Nitrate+Nitrite Residual	Station nitrate+nitrite subsidy			
Date	**Amounts**	**M-1**	**M-2**	**M-3**	**M-4**
Year	**Annual (µg/L)**	**Nitrate+Nitrite (µg/L)**			
2018	397	0	0	47	0
2019	237	27	11	40	0
2020	316	9	0	51	0
2021	687	0	0	4	0
2022	678	0	0	0	0
2023	509	11	0	0	0
Grand Mean	**471**	**8**	**2**	**24**	**0**

We obtain a rough estimate of the nitrate+nitrite residual to the nearshore waters by first calculating the salinity reciprocal (*Sw*) for the Makena well data and this becomes our salinity factor for the contribution of groundwater seeping out at the shore. The amount of nitrate+nitrite expected in the nearshore from groundwater should be a function of the proportion of groundwater present, calculated using the equation:

$$Expected\ groundwater\ contribution = \frac{Ss\ x\ C}{Sw}$$

Where:

Ss = Salinity reciprocal at 2 m stations;

C = Mean monthly nitrate+nitrite concentration for all wells;

Sw = Mean salinity reciprocal for Mākena wells.

Utilizing the inverse relationship between salinity and nitrate+nitrite in these waters, a nitrate+nitrite residual at the shore is obtained by subtracting this calculated expected contribution from the actual (measured) nitrate+nitrite concentration on 2 m station. Although transect M-4 is not in the same watershed as MG&BC, we make the assumption that the groundwater in that watershed can be represented by the Mākena wells. Negative values are sometimes generated, but as these are meaningless, they are presented as zero (no residual) in Table 7.

Of course, we have no direct knowledge of when a fertilizer application on the land might be expressed in groundwater seeping out at the shore, if at all. The residuals shown in Table 7 are certainly very rough and at best may be an indication of the magnitude of the groundwater influence. The lowest annual mean fertilizer residual estimate occurred in 2019 when nitrate+nitrite concentrations were highest at all 2 m stations except at Transect M-3 and M-4 (*AECOS*, 2019). The highest mean fertilizer residual amount occurred in 2021 and 2022 when nitrate+nitrite concentrations were lowest at all 2 m stations (Table 3). Many more samples will be required before this approach can generate statistically meaningful results.

Fates of Groundwater Nutrients in Mākena Coastal Waters

Nutrients infiltrating to coastal waters have important implications regarding biological assemblages in these waters. For example, growth of marine benthic algae in Hawaiian coastal waters is typically regulated by nutrient supply, usually dissolved forms of inorganic nitrogen (nitrate, nitrite, and/or ammonium) or phosphorus (ortho-phosphate) and referred to as dissolved inorganic nitrogen (DIN) and dissolved inorganic phosphorus (DIP). Typically, in pristine coastal waters, either DIN or DIP occurs in insufficient concentration to sustain runaway algal growth (Atkinson and Smith, 1983; Smith, 1984; Larned, 1998; HDLNR, 2020). Outbreaks of excessive amounts of algae off West Maui have been attributed to elevated concentrations of both DIN and DIP in sewage effluent injected into groundwater and migrating to nearshore waters (Laws et al., 2004; Dollar and Andrews, 1997; Dailer, 2010; MRC, 2011). No such algal outbreaks have been recorded for nearshore waters off MG&BC (MRC, 2006; *AECOS*, 2016, 2018, 2020). That excessive algal growth has not been seen in waters off Mākena may be due to several factors, including a limit on the supply of DIP or DIN in these coastal waters plus generally rapid flows of nearshore coastal waters.

Surface Water Runoff

We have listed five years of rainfall summaries from two gauges in the Makena area (Table 8): Mākena Golf Course 249.1 rainfall gauge and Ulupalakua Ranch 250.2 rainfall gauge (Giambelluca *et al*. 2025). The Mākena golf course gauge was located on Mākena

North Golf Course at a height of 107 ft above mean sea level. The Ulupalakua Ranch gauge is located east near Highway 37 at 1869 ft. above mean sea level (Figure 8).

The average amount of rainfall in the Makena area is small, less than 9 inches per year at the Mākena gauge and about twice as much at the Ulupalakua gauge. Also, the number of days of rainfall is greater at the Ulupalakua Gauge.

Table 8. Rainfall summary for Makena Golf Course 2.49 rainfall gauge and Ulupalakua Ranch 250.2 rainfall gauge between 2018 and 2023.

Year	Gauge	Rainfall Days	Annual Total (in)	Highest Value (in)	Days >1.00 in (in)
2018	Mākena	31	12.87	1.16	4
	Ulupalakua	55	22.08	2.33	7
2019	Mākena	27	8.75	2.03	1
	Ulupalakua	45	10.62	2.77	2
2020	Mākena	7	5.64	1.55	4
	Ulupalakua	41	15.09	1.86	5
2021	Mākena	17	9.04	4.50	1
	Ulupalakua	50	18.93	6.68	3
2022	Mākena	19	10.99	2.90	1
	Ulupalakua	35	10.54	3.27	3
2023	Mākena	26	6.09	0.80	0
	Ulupalakua	59	20.86	3.12	4
Means	Mākena	21	8.90	2.16	2
	Ulupalakua	48	16.35	3.34	4

Project Water Quality Considerations

Potential effects to coastal water quality resulting from the proposed Project can be divided into two phases: (1) Project construction and development; and (2) Project operation and maintenance. Potential water quality impacts during construction and development will primarily be associated with surface runoff from storm events when soil erosion potential is highest. Potential impacts during operations/maintenance phase will also include surface runoff effects due to increased impervious surfaces (asphalt, concrete, roofs) which could accelerate runoff delivery to coastal waters.

Additionally, an increase in WWRF R-1 water volume may result in additional unused nutrients reaching groundwater and eventually adjacent coastal waters.



Figure 8. Location of Mākena Golf Course gauge 249.2 and Ulupalakua Ranch gauge 250.2

Project construction and development

Nearshore coastal waters will be most susceptible to water quality degradation from storm runoff during Project construction, especially during early grading and grubbing activities. Impacts could include soil erosion resulting in sedimentation and increased nutrient levels delivered off the shore. Increased sediment loading of coastal waters can have negative effects to fish, coral, and macro-invertebrate communities in these waters (see *AECOS*, 2016).

Best management practices (BMPs) during construction to prevent storm and sediment runoff to nearshore waters include temporary sediment retention basins, diversion berms and swales, silt fences, inlet and slope protections. These BMPs follow Maui Department of Public Works Rules for Design of Stormwater Treatment, Best Management Practices and State of Hawaii, Construction Best Management Practices Field Manual (HDOT, 2008.).

A National Pollution Discharge Elimination System (NPDES) stormwater permit will be required for Project construction to ensure that water quality is not degraded in nearshore waters off the Project site. As part of this permit a Stormwater Pollution Protection Plan (SWPPP) must be prepared and approved by the HDOH Clean Water

Branch. The SWPPP has two major requirements: (1) providing a site description that identifies sources of pollution to stormwater discharges; and (2) identifying and implementing appropriate measures to reduce pollutants (sediments, nutrients) in stormwater discharges to ensure compliance with terms and conditions of the permit.

It is not possible to predict Project construction effects on nearshore water quality, since the magnitude or timing of future major storm events cannot be determined. The Project is located in a low average rainfall area (about 9 inches per year), which minimizes the risk of major runoff occurring during the construction phase. Maintaining nearshore water quality during construction depends upon the effectiveness of the SWPPP and BMPs.

Storm Runoff

The proposed Project drainage plan (SSFM, 2024) includes grated drain inlets and/or catch basins, area drains, underground drain lines, retention basins, bioretention basins, and underground retention systems throughout the development to minimize runoff to nearshore waters. The retention devices not only minimize water flow through the Project area, but they also trap much of the water-borne sediments and associated nutrients. Project landscaping will include grass swales, bioswales, and vegetated buffers to further reduce runoff.

A sustainability report has been prepared for the Project recommending the use of Low Impact Design (LID) measures, to further reduce storm runoff to nearshore waters (Cording, 2025). The report addresses the potential impacts of Marine Water Quality Degradation and recommends a mitigation plan inclusive of stormwater management planning, groundwater protection and suggestions to recharge the nearby groundwater resource.

Surface flows from offsite *mauka* will be addressed by Future Keyline design features and LID improvements to the Project removing nutrients and sediments and reducing velocity and total runoff volume.

While predicted reductions in peak runoff to nearshore waters are based solely on modeling results and theoretical estimates of LID efficiencies, drainage control measures indicate that there will be a significant reduction in runoff, nutrients, and sediments from the Project parcels compared with existing conditions. Runoff originating *mauka* of the Project will be reduced during a 1-year storm, while 50-year and 100-year storm runoff will mostly pass through the Project and discharge to nearshore waters.

Fertilization/Irrigation

Influx of nutrients to nearshore waters resulting from Project irrigation/fertilization and the added resort R-1 water production, are potential concerns regarding both marine water quality and biology. Potential increased nutrient supply to nearshore waters can promote benthic algal growth as evidenced in coastal waters off west Maui.

Project operation is anticipated to generate approximately 310,000 gpd of secondary R1 water (SSFM, 2025). To the extent that R-1 water is used in irrigation of the golf course and landscape of the resort grounds, there is at least the potential for an increase in nutrients infiltrating via groundwater to adjacent nearshore waters.

Irrigation/Fertilization Calculations

Pond 10 is the 5-million-gallon irrigation system for MG&BC. During normal Mākena operation, Pond 10 will contain 4,470,000 gallons of groundwater (nitrate+nitrite concentration = 1,700 µg/L) and 310,000 gallons of Mākena WWRF R-1 water (SSFM, 2025) with nitrate+nitrite concentration of 6,290 µg/L (Water Tectonics, 2024). Both groundwater and R-1 water resources are renewed daily. The combined groundwater (1,700 µg/L nitrate+nitrite) and mixed diluted R-1 water (365 µg/L nitrate+nitrite---after dilution to Pond 10 volume) for a total 1.979 µg/L nitrate+nitrite concentration and plus daily landbased nitrate+nitrite fertilizer of 446 µg/L, a 20 percent fertilizer residual estimate (USGS, 2018), for a grand total of 2,425 µg/L of nitrate+nitrite residual discharged to groundwater.

The USGS estimates that about 20 percent of golf course fertilizer is unused and remains in groundwater (USGS, 2018). Thus, an estimated total of 2,425 µg/L of nitrate +nitrite, needs to dissolve to a groundwater concentration of 1,700µg nitrate+nitrite, a change of 725µg/L, by the time it reaches Mākena coastal waters — a distance based on the difference between fertilization area and nearshore coastal waters

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APPENDIX

L

MARINE BIOLOGICAL SURVEY REPORT

Marine biological survey for the proposed Mākena Mauka Project, Mākena, Maui



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June 16, 2025

Marine biological survey for the proposed Mākena Mauka Project, Mākena, Maui

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Introduction

AREG AC Mākena Propco LLC proposes the development of Mākena Mauka, a low-density master planned residential community within the Mākena area of East Maui (area often referred to as Mākena Resort). Mākena Mauka referred to herein as the "Project" will offer market rate housing together with residential workforce housing with a mixture of rural and single-family lots and multi-family residential units all located mauka of Mākena Alanui Road (Figure 1).

Due to the size of the Project and the potential impacts from the use of county lands associated with proposed roadway improvements, use of Shoreline Setback Area lands, and an anticipated Community Plan Amendment (CPA) request, an Environmental Impact Statement (EIS) is being prepared. In June 2024, an EIS Preparation Notice (EISPN) was published, with an anticipated EIS to be released in the summer of 2025 (Munekigo Hiraga, 2024). *AECOS* was contracted to conduct marine surveys of the waters adjacent to the Project location to support the EIS and completed field surveys in 2016 and 2019 (*AECOS*, 2016 and 2020). In March 2025, we conducted surveys to complement our previous surveys and provide updated information on marine environments in the area. This report details our 2025 findings.

Project description

Mākena Mauka is proposed as a low-density master-planned residential community that will offer market rate housing together with residential workforce housing, with a mixture of rural and single-family lots and multi-family residential units, within an area that has largely been planned for such uses for decades. The project will incorporate the existing 18-hole Mākena North Golf Course and the 18-hole Mākena South Golf Course (to be renovated as part of the land plan), together with a community gathering place, hiking trails, programs to support connectivity, walking, bicycling, and golf cart paths, beach parking for the public, areas reserved for conservation/open space, and areas reserved for public beach access. The Applicant's current vision for the Mākena Mauka land plan includes 652 housing units, including 109 onsite residential workforce housing units, and approximately 135,000 sf of operational support buildings, which include golf maintenance, staff offices, restaurants, back of house, golf operations and other uses; within the approximately 1,041.47-acre total project area which includes approximately 473 acres of parcels proposed for residential development.
(Munekigo Hiraga, 2024).

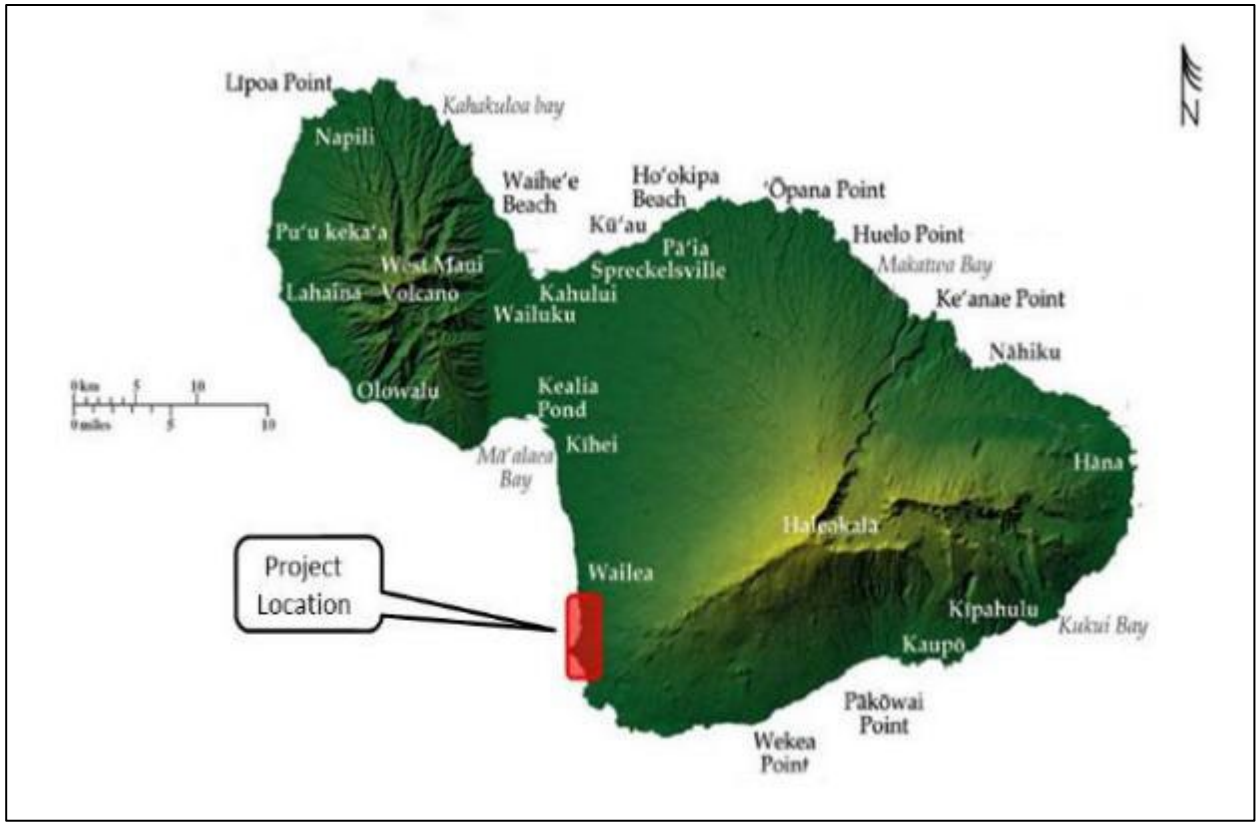

Figure 1. Project location in Mākena, East Maui.

Background Information

NOAA-NOS benthic habitat maps (Battista et al., 2007) provide physiography (i.e., reef flat, channel, reef crest, fore reef, and bank/shelf) and biological cover (i.e., % coral, % macroalgae, % turf, % coralline algae, and uncolonized bottom) of thenearshore environments. The NOAA-NOS habitat off the Project area includes the following categories of bottom types: uncolonized sand, hard bottom with coral cover between 10 - 50%, coral between 50 – 90%, hard bottom with turf between 10 - 50%, turf between 50 – 90%, and hard bottom with macroalgae between 10 - 50%, and macroalgae between 50 - 90%.

The shore and intertidal areas off Mākena consist predominantly of a series of basalt outcrops separating wide crescent-shaped sand beaches. The beaches are composed of fine white calcium carbonate sand extending seaward into the subtidal zone. In some areas, a sand formation continues seaward as gentle sloping sand bottom. The most prominent geological feature in this area is the cinder cone, Pu'u Ola'i, that separates Oneloa (Big Beach) and to the south and Oneuli Beach to the north. Mākena Bay is somewhat atypical of the coastal region,

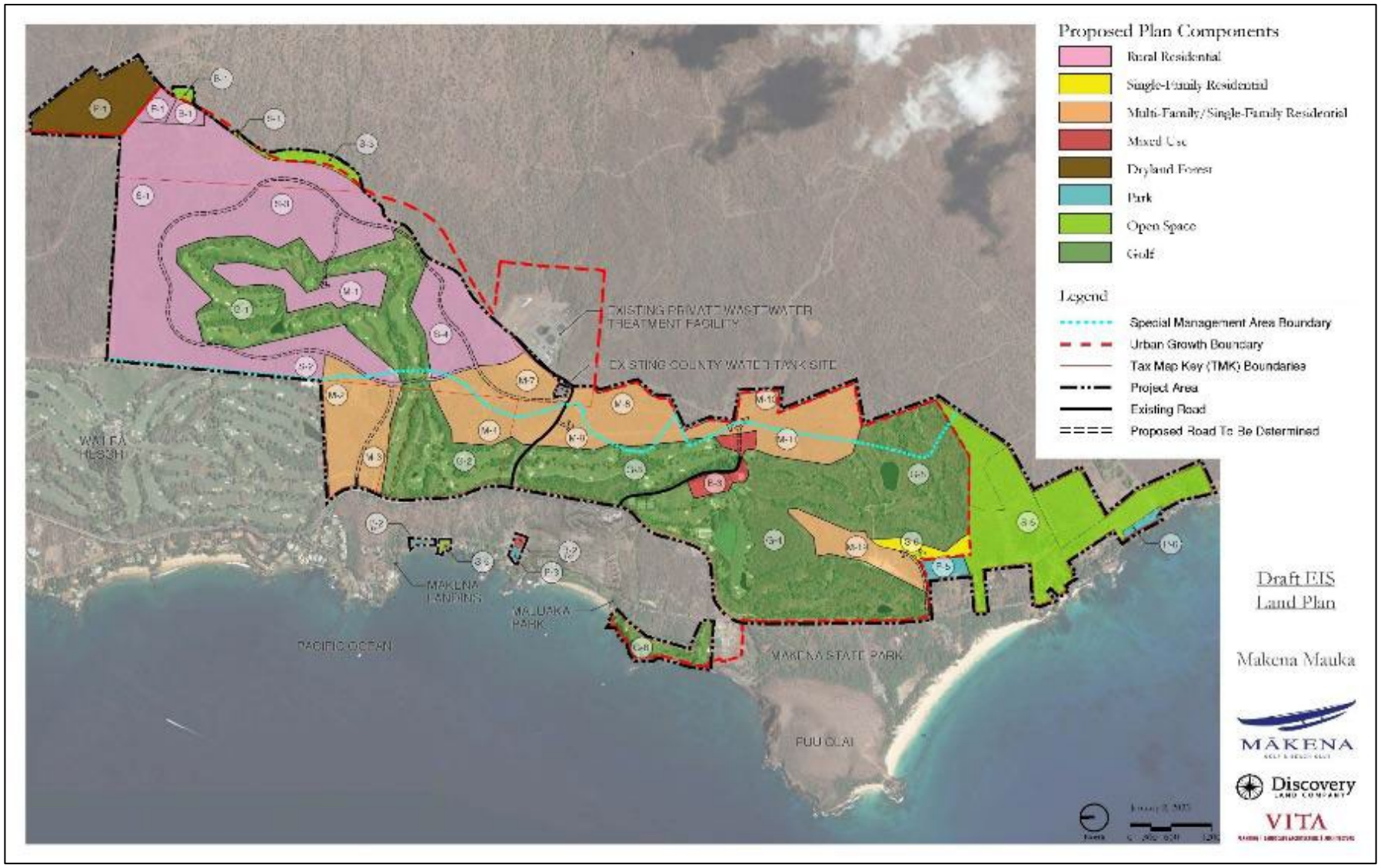

Figure 2. Mākena Mauka Conceptual Land Use Plan (Munekigo Hiraga, 2024).

as the area is more sheltered from wave effects than the open coastal areas, and bottom composition contains more terrigenous sediment than seen in other locations off this coast (MRC, 2006). Seaward of the intertidal zone, bottom composition varies between sand channels and limestone reef platform. The submerged portions of the basalt headlands consist of jagged, steep-sided rock fingers that terminate in sand bottom. There are numerous depressions and undercut ledges associated with these fingers at the shore.

Biological assessment surveys in the Project area were conducted in 2005, focused offshore of the Mākena Resort (MRC, 2006). In 2016, *AECOS* conducted marine biological surveys at 12 stations offshore Mākena (*AECOS*, 2016). Our 2016 survey found the dominant marine bottom types in the area to be sand and limestone pavement. Overall, coral cover averaged 7% of bottom cover across our survey area. Macroinvertebrate, turf algae, CCA, and rubble made up small portions of the bottom composition, all less than 3% of each station (*AECOS*, 2016). This latter finding was consistent with the earlier 2005 surveys (MRC, 2006). Our 2019 survey found that, overall, the offshore coral reef has relatively low coral cover (mean of 7.25%) with a size class distribution in which the preponderance of coral heads are in the smallest size class (<10 cm). Such a distribution suggests either a recent, severe disturbance or frequent recurrences of moderate disturbances, following which recruitment and growth have been relatively recent processes. Other factors include the environmental regimes to which coral is exposed (e.g., shifting sand bottom).

Methods

AECOS biologists conducted surveys to inventory marine bottom assemblages in the nearshore off the Project area on March 21, 22, and 23, 2025. Using both SCUBA and snorkel equipment, we conducted orthomosaic mapping and collected data on benthic composition, coral abundance and size-class distribution, coral species composition, fish abundance, and presence of Endangered Species Act (ESA)-listed species. Orthomosaic maps are geometrically corrected aerial images that provide a two-dimensional view of an area, These orthomosaics can be used for detailed physical referencing to monitor changes in coral health and growth over time (See Appendix C for representative orthomosaics of the Project area). Survey methods for each location are described following. Depths in the survey area ranged from 7 m (24 ft) to 14 m (45 ft). On March 21, our biological survey began at 8:00 AM, four hours and 33 minutes before a predicted 0.04 low tide relative to mean lower low water (MLLW); on March 22, our survey began at 8:00 AM, five hours and fifty-seven minutes before a predicted 0.11 low tide relative to MLLW, and on March

23, our survey began at 8:00 AM, 90 minutes after a predicted 0.42 low tide relative to MLLW (Makena, Station ID: 1615202; NOAA-NOS, 2025). An inventory was made for corals, "invasive" species, seagrass, marine protected species (HDLNR, 2009, 2014, 2015; USFWS, 2019), and non-coral macro-invertebrates. Underwater visibility during the March 2025 survey varied between stations from about 6 m (20 ft) to 18 m (60 ft).

Transect placement

Consistent with our 2016 and 2019 surveys, we utilized NOAA-NOS benthic habitat maps (Battista et al., 2007) to identify the dominant composition of the bottom in the Project area: 1) unconsolidated sediment (sand), and 2) coral reef/hard bottom (rock and boulders). For our 2025 survey efforts, we separated the NOAA-NOS benthic habitats to differentiate between coral reef hard bottom areas and other hard bottom areas. Our survey stations names indicate this distinction: coral hard bottom stations named "CHB"; hard bottom stations named "HB" and unconsolidated stations named "UNC". Survey stations for each of these habitat types were selected using a stratified random approach. A random number generator was used to identify x- and y-coordinates on a grid generated by Adobe© Photoshop© placed over this map of geomorphological structure types.

Transects were laid parallel to depth contours. The results of all transects are analyzed individually and collectively as a group. Consistent with our previous surveys, in general, our transect results revealed that the maps of bottom type were not always accurate (e.g., "hardbottom" areas in fact include some "unconsolidated/sand" areas and "unconsolidated sediment" areas in fact contain "hardbottom"). As a result, we grouped all transects together for analysis rather than group by habitat type. Due to strong currents causing hazardous diving conditions, one station in the unconsolidated habitat type was removed from our survey effort. A total of 15 stations (Figure 3) was assessed based on the following protocol.

The Rapid Ecological Assessment (REA) methods used by NOAA Pacific Islands Fisheries Science Center (PIFSC) are comprehensive, fine-scale, site-specific surveys. NOAA PIFSC monitors coral reef health at about 40 islands and atolls, using standardized survey methods to assess corals, algae, other invertebrates, and fishes in marine benthic habitats. These methods are used consistently across the Pacific Islands region to enable comparative ecosystem analyses across diverse biogeographic, environmental, oceanographic, and socioeconomic gradients. For this reason, our survey methodology was based on the REA. At each of our survey stations, two 25-m lines were set down in single file, separated

by a 5-m segment between the adjacent ends[1]. The lines were then used to quantify bottom complexity, benthic composition, coral abundance, coral size class, and fish assemblage composition as described below.



Figure 3. Location of 15 transect survey stations offshore of the Mākena area.

[1] It is unclear to us why the REA uses two 25-m lines in the manner described. This layout is essentially one 50-m transect station because the two 25-m transects are linked and not independent of each other as required for statistical analyses of the resulting data. Transect data are analyzed by station herein.

Benthic composition

The point intercept method (also termed a "line-point intercept" method) was used to assess benthic composition at each survey station. This protocol uses marks on the transect line as sample points. At 0.5-m intervals, the nature of the bottom was identified and assigned to one of the following categories: sand, limestone rubble, limestone boulder, limestone, live coral, turf algae, macroalgae, or macroinvertebrate. Benthic composition using the point-intercept method was recorded for each of the two 25-m lines, which generated 102 points per transect). Benthic percent cover was calculated by dividing the total number of points for a category by the total number of points sampled (times 100).

Coral abundance and size-class distribution

Biologists gathered coral abundance and size-class data from five evenly spaced segments (each a 2.5 x 1 m quadrat) along each 25-m line. Within each 2.5 m^2 quadrat, any live coral whose center is included, was identified and assigned to a size class: 1- to 5-cm; 6- to 10-cm; 11- to 20-cm; 21- to 40-cm; 41- to 80-cm; 81- to 160-cm; or >160-cm. Bleaching and any signs of disease were also recorded. Coral abundance was determined as the number of individual heads observed for each transect, divided by the total area surveyed per transect, resulting in the number of individual corals per m^2. Coral abundance and size class was surveyed at each station (two 25-m lines with 12.5 m^2 coral survey area each), producing a total survey area of 375 m^2.

Orthomosaic

Five weighted triangles were placed roughly 12 to 13 m apart along a 50-m transect at each station. The triangles provided the diver a general direction and guidance along the correct course (the next triangle was visible from the previous one), as well as mark the start and finish of the transect. Using two GoPro cameras mounted 0.6 m apart on an assembled PVC rig, photographs were taken every 0.5 seconds in time lapse mode while swimming slowly along the surface from the last triangle to the first. The cameras were angled directly downward and outfitted with a red filter for underwater color enhancement. Approximately 450 images were collected per camera at each transect and processed using Agisoft® software. Triangles were a fixed length (0.44 m along the hypotenuse) and used to preserve scale along the length of each orthomosaic.

Fishes

At each survey station, pairs of divers recorded the number and species of all fishes observed within visually estimated vertical cylinders 15 m (50 ft) in diameter. At the start of a survey dive, one diver moved to the 7.5-mark and one diver moved to the 22.5-m mark on the 25-m line; these marks serve as the centers of Stationary Point Count (SPC) cylinders. During a 5-minute timed period, the diver recorded the fish species observed within or passing through their visual "cylinder" (i.e., within 7.5 m or 25 ft of the observer).

Fish abundance was calculated by normalizing fish counts from each station to 100 m^2 (1076 ft^2). Species richness (S) was determined as the number of species observed for each transect. Species diversity was calculated using the Shannon-Weiner diversity index (H') where p_i is the proportion of all individuals counted that were of species i using the equation:

$$H' = -\sum_{i=1}^{S} p_i \ln p_i$$

Results

Benthic composition

The results of the point-intercept surveys are presented in Figures 4 and 5. The dominant bottom type across the transects is sand (with a total of 59.7%; Fig. 6). Turf algae and coral make up the common bottom types across the survey areas, at 17% and 10%, respectively. Invertebrates (other than coral) make up a small portion of benthic composition across the 15 survey stations, under 1% of the total. In general, these results are consistent with findings from our 2019 surveys (*AECOS*, 2020).

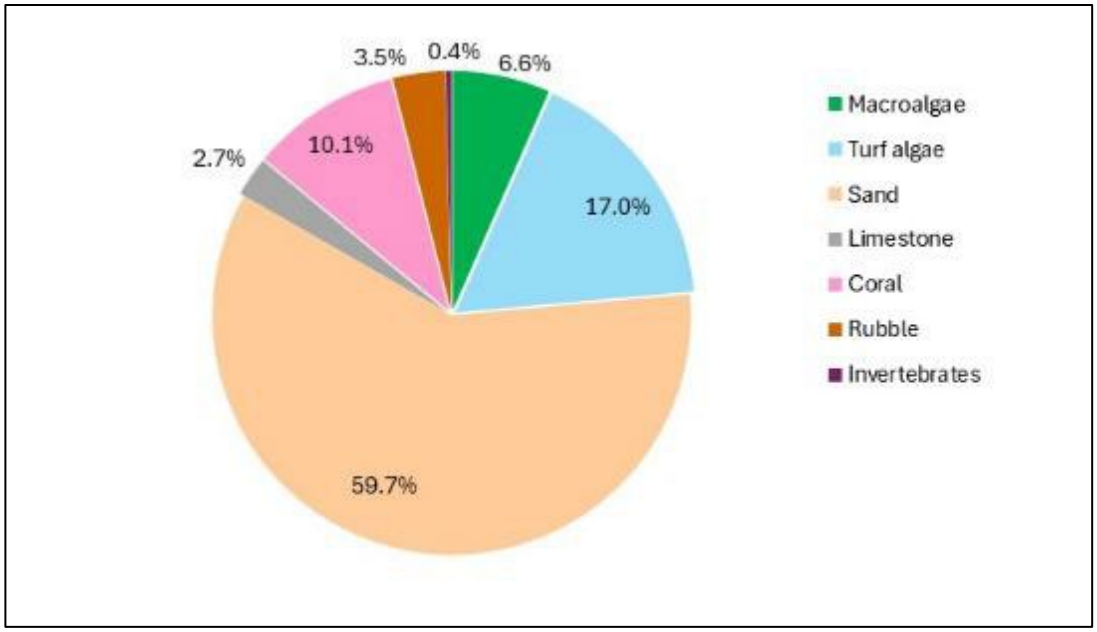

Figure 4. Mean percent benthic cover across survey area, as measured using point-intercept method at 15 survey stations.

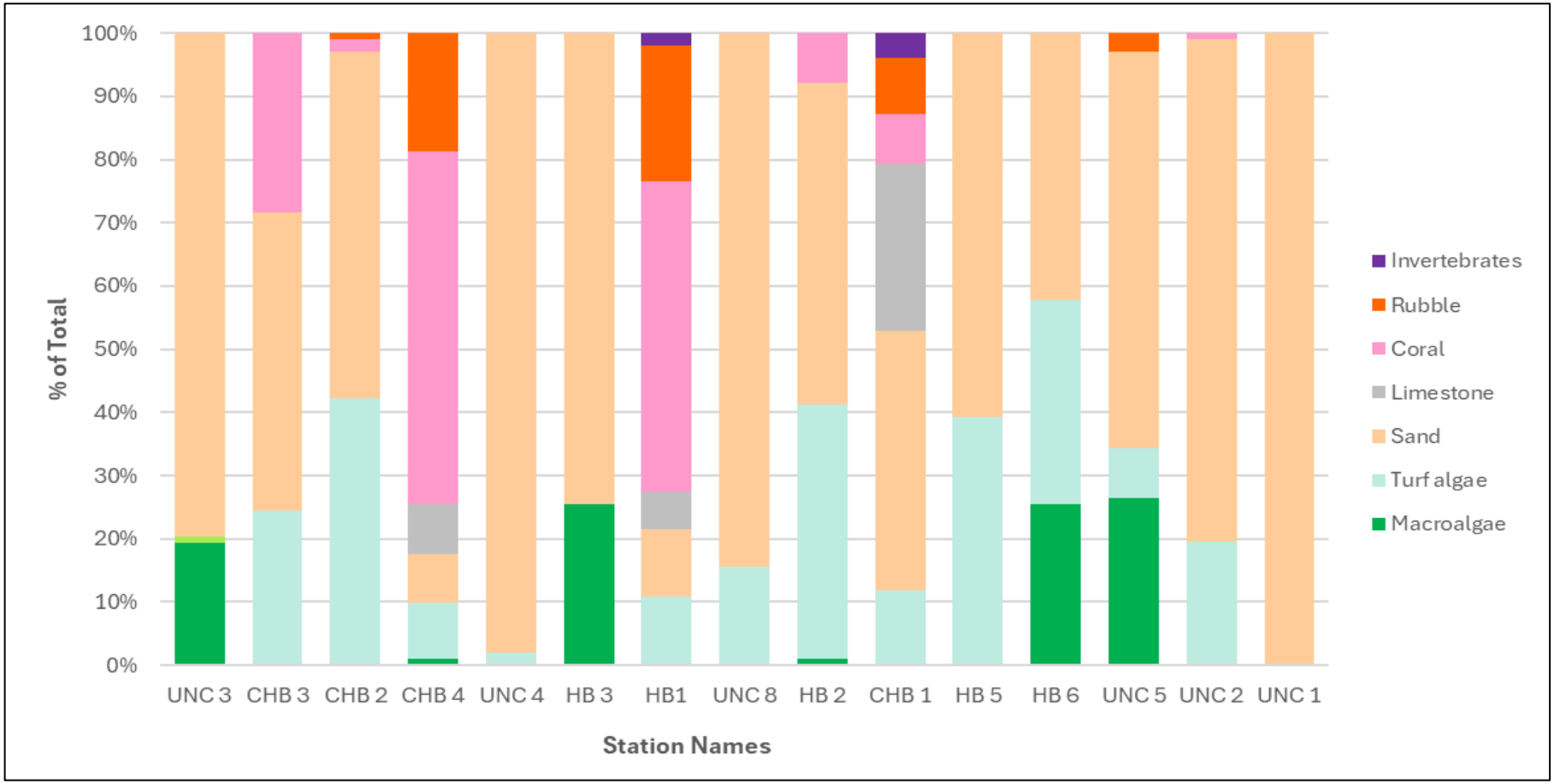

Figure 5. Percent benthic cover as measured using point-intercept at 15 survey stations. "UNC" = unconsolidated; "CHB"=coral hard bottom; and "HB"=hard bottom

Coral abundance and size class distribution

Coral abundance determined at each survey station is presented in Table 1. The total number of coral colonies was 1322. Coral abundance ranges from 0 colonies/m^2 to 18.16 colonies/m^2 and mean coral abundance was 6.52 colonies/m^2.

Table 1. Total number of coral colonies and coral colony abundance (mean colonies per m^2) counted at 15 survey stations.

Station	25-m Line	Coral count (colonies)	Coral abundance (no./m^2)	Station mean coral abundance (no/ m^2)
CHB1	A	375	29.84	18.16
	B	81	6.48	
CHB2	A	25	2	2.64
	B	41	3.28	
CHB3	A	77	6.16	5.44
	B	59	4.72	
CHB4	A	118	9.44	7.84
	B	78	6.24	
HB1	A	128	10.24	8.76
	B	91	7.28	
HB2	A	76	6.08	8.8
	B	144	11.52	
HB3	A	7	0.56	0.4
	B	3	0.24	
HB5	A	--	--	--
	B	--	--	--
HB6	A	--	--	--
	B	--	--	--
UNC1	A	--	--	--
	B	--	--	--
UNC2	A	--	--	--
	B	--	--	--
UNC3	A	--	--	--
	B	1	0.08	0.08
UNC4	A	--	--	
	B	11	0.88	0.88
UNC5	A	--	--	
	B	--	--	--

Table 1 (continued).

Station	25-m Line	Coral count (colonies)	Coral abundance (no./m²)	Station mean coral abundance (no/ m²)
UNC8	A	7	0.56	0.56
	B	--	--	
Total		**1322**	**6.21**	**6.52**

Coral size-class distribution — Results of the coral size-class survey are presented in Table 2 and Figure 6. A total of 1322 coral colonies representing at least ten coral taxa (*Montipora capitata*, *M. patula*, *Pocillopora* sp. *Poc. meandrina*, *Poc. damicornis*, *Porites lobata, P. evermanni, P. brighami P. compressa*, and *Leptastrea* sp.) were recorded across the survey stations. By far, the most common coral was *Porites* spp., with 1131 colonies (80% of the total). Corals in all size classes were observed. The most common colony size was the 1- to 5-cm class (58% of the total). Very large (>161 cm) colonies of two taxa (*P. compressa* and *Porites* spp.) were observed at three survey stations (Stations CH2, CH3, and CH4). These results from this coral size class survey are consistent with our findings from previous surveys in the area (*AECOS*, 2016).

Table 2. Number of coral colonies in each size class by species at the 17 survey stations.

	Size class (cm)								*Percent of total*
Taxa	**1 to 5**	**6 to 10**	**11 to 20**	**21 to 40**	**41 to 80**	**81 to 160**	**>161**	**Total**	
Leptastrea sp	1	--	--	--	--	--	--	1	**0.08%**
Montipora capitata	11	7	1	--	--	--	--	19	**1.44%**
Montipora patula	3	1	--	--	--	--	--	4	**0.30%**
Montipora sp	1	--	--	--	--	--	--	1	**0.08%**
Pocillopora meandrina	15	17	5	--	1	--	--	38	**2.87%**
Pocillopora sp	110	9	1	3	2	3	--	128	**9.68%**
Porites compressa	15	28	35	29	15	3	2	127	**9.61%**
Porites spp.	610	174	115	60	28	14	3	1004	**75.95%**
Total count	**766**	**236**	**157**	**92**	**46**	**20**	**5**	**1322**	
Percent of total	57.94%	17.85%	11.88%	6.96%	3.48%	01.51%	0.38%	100%	

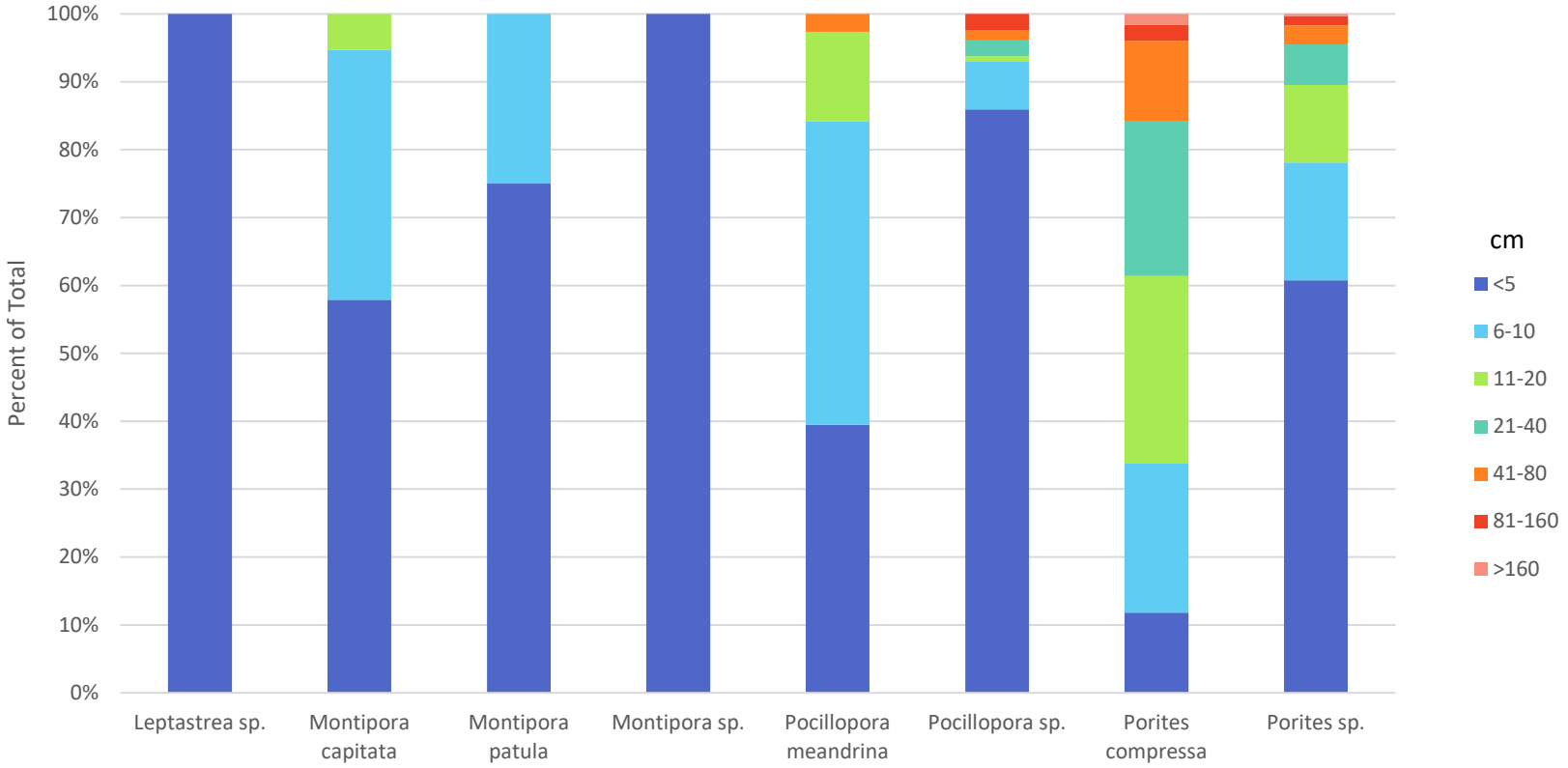

Figure 6. Percentage of coral colonies in size classes (cm) for all 15 survey stations.

Fish species abundance, richness, species diversity

Fish abundance — The total number of fishes counted was 1092. Table 3 presents the number of fishes counted for each station. Fish counts ranged from 2 individuals per station to 158 individuals per station and were generally low at unconsolidated bottom stations (Stas. UNC1, UNC2, UNC3, UNC4, UNC5 and UNC8) and higher at coral hard bottom and hard bottom stations with some topographical relief. Mean number of fishes counted across the survey area was 73 individuals per station.

Fish abundance normalized to 100 m^2 is presented in Table 4. Mean fish abundance across the survey area was 10.3 fishes per 100 m^2. The maximum abundance was 22.3 fishes per 100 m^2, at Station CHB4. The lowest fish abundance was at Stations UNC2 and UNC3, both with 0.3 fishes per 100 m^2.

Table 3. Number of fishes counted for 15 survey stations and overall mean (±SD;).

Station	No. of fish counted
CHB1	56
CHB2	48
CHB3	117
CHB4	158
HB1	156
HB2	133
HB3	5
HB5	110
HB6	36
UNC1	48
UNC2	2
UNC3	2
UNC4	47
UNC5	120
UNC8	54
Total	**1092**
Mean	73±52.8

Table 4. Fish abundance (fishes/100 m^2) for each station.

Station	Fish abundance (fish/100 m^2)
CHB1	7.9
CHB2	6.8
CHB3	16.5
CHB4	22.3
HB1	22.0
HB2	18.8
HB3	0.7
HB5	15.5
HB6	5.1
UNC1	6.8
UNC2	0.3
UNC3	0.3
UNC4	6.6
UNC5	16.9
Mean	**10.3±7.72**

Fish species richness and diversity — A total of 43 fish species was observed across 15 stations. Well-represented genera across the survey area include wrasses (Labridae) surgeonfishes (Acanthuridae), damselfishes (Pomacentridae) and butterflyfishes (Chaetodontidae). Fish species richness and diversity for each survey station are presented in Table 5. Species richness varied between 1 and 15 species per station, with the highest species richness observed at hard bottom stations. Overall mean species richness across the entire survey area was 9.71 fish species. Fish diversity across the stations ranged from 0 to 2.33, with the greatest diversity occurring at Station CHB1 (Table 5).

Relative abundance of marine biota

Photos from across the survey area are provided in Appendix A. A listing with relative abundance values of algal, coral, macroinvertebrate, and fish taxa present in the Project area in our 2016, 2019 and 2025 surveys is provided as Appendix B.

Algae — A total of 12 algal taxa were identified across the survey area. Macroalgae were uncommon throughout the 15 stations. Species observed include *Neomeris* sp., *Dictyota* sp., *Padina sanctae-crucis*, *Halimeda opuntia*, and

various coralline algae (*Hydrolithion* spp. and *Sporolithon erythraeum*). Meadows of *Halimeda kanaloana* were observed on the sand bottom areas.

Table 5. Fish species richness (no. of species/transect) and fish species diversity for each station.

Station	Species richness	Species diversity
CHB1	15	2.33
CHB2	11	1.68
CHB3	14	1.88
CHB4	14	1.93
HB1	15	2.05
HB2	13	1.68
HB3	3	1.01
HB5	6	0.33
HB6	3	1.04
UNC1	11	1.97
UNC2	1	0.00
UNC4	7	1.51
UNC5	12	1.44
UNC8	11	1.97
Mean	**9.71** ±4.81	**1.49**±0.67

Coral — A total of 10 coral taxa (*Montipora capitata*, *M. patula*, *Pocillopora* sp. *Poc. meandrina*, *Poc. damicornis*, *Porites* spp. (massive), *P. compressa*, and *Leptastrea* sp.) were recorded across the survey stations (Table 6). Six of these were recorded at Stas. CHB1 and HB1. Live coral was recorded at each Station. The most common coral is *Porites* spp. (76% of the total), followed far behind by Pocilloporids and *P. compressa* (around 9% each).

Macroinvertebrates — A total of 30 macroinvertebrate taxa (not including hard corals) was identified across the survey stations. Comparable to our previous surveys in the area, sea urchins (*Echinometra mathaei, E. oblonga*, *Colobocentrotus atratus*, *Heterocentrotus mammillatus*, *Diadema paucispinum*, *Echinothrix calamaris Pseudoboletia indiana*, and *Tripneustes gratilla*) are the most common macroinvertebrates observed. Other invertebrates, including vagabond boring sponges (*Spirastrella vagabunda*), sea cushion (*Culcita novaeguineae*), sea star (*Linckia guildingi*), trembling nudibranch (*Goniobranchus vibrata*), gold lace nudibranch (*Halgerda terramtuentis*), and teated sea cucumber (*Holothuria whitmaei*) occur occasionally.

Table 6. Number of coral colonies and species observed in each station.

Station	No of coral colonies	No of coral species
CHB1	456	6
CHB2	68	4
CHB3	136	5
CHB4	196	2
HB1	219	6
HB2	220	3
HB3	10	1
HB5	0	0
HB6	0	0
UNC1	0	0
UNC2	0	0
UNC3	1	1
UNC4	11	2
UNC5	0	0
UNC8	7	1
Total	**1322**	**8**

Fishes — A total of 43 fish taxa was recorded across the survey stations, with 15 of these observed at CHB1 and HB1. As expected, in locations with topographical complexity, fishes were present. Mixed schools of Acanthurids, including brown tang (*Acanthurus nigrofuscus*), yellow tang (*Zebrasoma flavescens*), and goldring surgeonfish (*Ctenochaetus strigosus*) were prevalent. Small planktivorous damselfish, including *Chromis vanderbiliti, C. agilis, C. hanui, C. ovalis, Chromis* sp. were abundant, as also noted by the 2005 (MRC, 2006), 2016, and 2019 surveys (*AECOS*, 2016; 2020).

Discussion

Comparison of previous findings

Results from this 2025 survey show a similar species assemblage, coral community, and size class distribution as in our 2016 and 2019 surveys (*AECOS*, 2016; 2020) and the MRC survey in 2005 (MRC, 2005). In each of our survey efforts, the most common coral was *Porites* spp. Corals in all size classes were observed, and the most common colony size was the 1- to 5-cm class. At each survey event, large (>80 cm) colonies of two taxa (*P. compressa* and *Porites* spp.) were observed. Additionally, coral cover is comparable between our three survey efforts (both 2016 and 2019 had a mean of 7.2%; our 2025 result is 6.5%).

Presence of coral bleaching was not observed in our 2016 survey but was noted in the 2019 survey due to a widespread coral bleaching event[2]. In 2019, coral bleaching was observed by our survey team with varying expression across taxa. All *Poc. meandrina* colonies displayed either partial or full bleaching; some colonies appeared pale in color while others were stark white, indicating that all symbiotic algae had been expelled. Other colonies showed signs of fluorescing bright yellow or purple. Fluorescent pigments might serve as protection for coral tissues in environments with intense light, functioning as a sort of "sunscreen" to regulate the light environment of the coral and help reduce bleaching stress (Salih et al., 2000). *Montipora* and *Porites* colonies appeared to be among the least affected, although we did observe several *Porites* colonies pale in color and partially bleached. These findings were similar to coral bleaching surveys recorded by NOAA Fisheries.[3] In our 2025 survey, bleaching was not notable.

Fish abundance was similar between the 2016 and 2019 survey efforts, with 16.7 fishes/100 m^2 at our 2016 survey, and 17.1 fishes/100 m^2 during the 2019 survey. In our 2025 survey, fish abundance across the survey area was 10.3 fishes per 100 m^2. Fish species richness and diversity measured in 2016 were lower (11.6 and 1.5), than that of 2019 survey (17.1 and 1.99, respectively). In 2025, mean species richness across the entire survey area was 9.71 fish species and diversity was 1.49.

Protected and Listed Species

One federally protected marine species was observed in our survey: green sea turtle (*Chelonia mydas*). Other state- and federally-listed (endangered or

[2] https://hawaiicoral.org/

[3] https://www.fisheries.noaa.gov/science-blog/coral-bleaching-2019-survey-update-leeward-maui

threatened; HDLNR, 2015; USFWS, nd) marine species—hawksbill sea turtle (*Eretmochelys imbricata*) and monk seal (*Neomonachus schauinslandi*)—may occur in the general vicinity of the Project considering the distribution of these species throughout the Islands but were not observed by us.

Invertebrates — Coral species are protected by Hawai'i State regulations that prohibit damage to "any stony coral by any intentional or negligent activity causing the introduction of sediment, biological contaminants, or pollution into state waters" (HDLNR, 2014). On August 27, 2014, NOAA issued a final rule for listing 20 coral species as threatened under ESA (NOAA-NMFS, 2014), but none of these listed coral species occurs in Hawai'i.

Hawai'i Department of Land and Natural Resources (HDLNR) regulates taking of shellfishes such as pearl oysters (HDLNR, 1987) and '*opihi* (HDLNR, 1989). One '*opihi* species (*Cellana exarata*) and black-lipped pearl oyster (*Pinctada galtsoffi*) were observed in our survey. Rules are in place for regulating the take of certain fishes (Table 8; HDLNR, 2019). Fishing activity is not a part of the Project, but it is anticipated that the proposed coastal development will increase the number of ocean users, including fishermen. Table 8 lists the regulated fish species for Maui. For the species listed in Table 7, there are minimum sizes and seasonal regulations, outlined by the state of Hawai'i Division of Aquatic Resources (HDLNR, 2019).

Table 7. Regulated fish species on Maui (HDLNR, 2019).

Common name	*Species*
Āholehole	*Kuhlia sandvicensis* and *K. xenura*
Akule	*Selar crumenophthalmus*
striped mullet; *'ama'ama, pua*	*Mugil cephalus*
milkfish; a*wa*	*Chanos chanos*
Goatfish	Family Mullidae
gold-spot herring	*Herklotsichthys quadrimaculatus*
Hāpu'u	*Epinephelus quernus*
silversides*;'iao*	*Atherinomorus insularum*
unicornfish; *kala*	*Naso unicornis* *N. brevirostris* *N. annulatus*
snapper; *Kalekale*	*Pristipomoides sieboldii*
whitesaddle goatfish; *Kūmū*	*Parupeneus porphyreus*
Lehi	*Aphareus rutilans*

Table 7 (continued).

Common name	*Species*
Makiawa (*mikiawa*)	*Etrumeus teres* *E. micropus*
convict tang; *manini*	*Acanthurus triostegus*
Marquesan sardine	*Sardinella marquensis*
manybar goatfish; m*oano*	*Parupeneus multifasciatus*
blue goatfish; m*oano kea*	*Parupeneus cyclostomus*
threadfin; *Moi*	*Polydactylus sexfilis*
doublebar goatfish; m*unu*	*Parupeneus insularis*
Hawaiian anchovy; *nehu*	*Encrasicholina purpurea*
bonefish; *ʻŌʻio*	*Albula glossodonta*
Hawaiian moonfish; *ʻŌpakapaka*	*Pristipomoides filamentosus*
mackerel scad; *ʻŌpelu*	*Decapterus macarellus*
Sleek unicornfish; *ʻŌpelu kala*	*Naso hexacanthus*
herring; *Piha*	*Spratelloides delicatulus*
"Tabai"	*Mollienesia spp.*
Threadfin shad	*Dorosoma petenense*
spectacled parrotfish; *Uhu uliuli and uhu ʻahuʻula*	*Chlorurus perspicillaus*
red lip parrotfish; *Uhu ʻeleʻele* and *uhu palukaluka*	*Scarus rubroviolaceus*
snapper; *ʻUkikiki (gindai)*	*Pristipomoides zonatus*
ʻUlaʻula (ehu)	*Etelis carbunculus*
Jacks (*Ulua* and *pāpio*)	*Caranx ignobilis* *C. lugubris* *C. melampygus* *C. sexfasciatus* *Carangoides equula* *C. ferdau* *C. orthogrammus*
yellowstripe goatfish; w*eke* and *ʻoama*	*Mulloidichthys flavolineatus*
orange goatfish; w*eke nono*	*Mulloidichthys pfluegeri*

Sea turtles — The distinct population segment (DPS) of green sea turtle (*Chelonia mydas*) that occurs in Hawaiʻi is federally-listed as a threatened species (USFWS and NOAA-NMFS, 2015a, b; USFWS, 2019). It is also listed as threatened under state regulations (HDLNR, 2014).

Threats to the green sea turtle in Hawai‘i include: disease and parasites, accidental fishing take, boat collisions, entanglement in marine debris, loss of foraging habitat to development, and ingestion of marine debris (NMFS-USFWS, 1998). Destruction and alteration of green turtle nesting and foraging habitats is occurring throughout the species' global range, especially by coastal development, beach armoring, beachfront lighting, vehicular/pedestrian traffic, invasive species, and pollution from discharges and runoff. Coastal development increases artificial lighting, which may disorient emerging hatchlings, causing them to crawl inland towards lights instead of seaward. Coastal development improves beach access for humans, resulting in more vehicular and foot traffic on beaches, causing compaction of nests and reducing emergence success. Adult green turtles forage in shallow nearshore areas and coral reefs. Contamination from effluent discharges and runoff has degraded these habitats, and invasive species may reduce native algal species preferred by green turtles or could exacerbate susceptibility to, or development of disease (NMFS & USFWS, 2007a; Guimaraes dos Santos et al., 2010). Fibropapillomatosis, a disease characterized by the presence of internal and/or external tumors that may grow large enough to hamper swimming, vision, feeding, and potential escape from predators continues to be a major threat to green sea turtles. Extremely high incidence has been reported in Hawai‘i, where affliction rates peaked at 47-69% in some foraging areas (Murakawa et al., 2000).

The green sea turtle diet consists primarily of benthic macroalgae, which the shallow reefs of the main Hawaiian Islands provide in abundance. Red macroalgae generally make up 78% of their diet, whereas green macroalgae make up 12% (Arthur and Balazs, 2008). The single most consumed algal species is *Acanthophora spicifera*, which is an introduced species first recorded in Hawai‘i in 1950 (Huisman et al., 2007). Little algal cover was observed across the survey stations and no *A. spicifera*. Despite the lack of preferred foraging resources, four green sea turtles were observed during our underwater surveys in 2019 and 2025. Additionally, green sea turtle basking sites at Mākena Landing and Mokuha have been recorded (NOAA-PIFSC, 2010).

Hawksbill sea turtle (*Eretmochelys imbricata*) is much less common than green sea turtle in Hawaiian waters. Hawksbill turtle is distributed across the Pacific, Indian, and Atlantic oceans. The global population has declined by more than 80% over the last 30 years and all hawksbill turtle populations were listed as endangered under the ESA in 1978. Hawksbill turtle faces many of the same threats affecting green sea turtle. In addition, there remains a commercial market for hawksbill shell products, despite protections afforded this species under U.S. law and international conventions (NMFS and USFWS, 2007b).

As with green turtle, hawksbill forage grounds and natal nesting areas are frequently located in different island groups, and residents of a given island group may originate from multiple natal nesting areas (NMFS & USFWS, 2007b). However, tagging studies suggest that hawksbill nesting in Hawai‘i remains within the MHI (main Hawaiian Islands). Genetic samples collected and analyzed suggest that Hawai‘i’s hawksbill sea turtle may be genetically and geographically distinct from other populations in the Pacific (Dutton and Leroux, 2008). Parker et al. (2009) report that the tracks of nine post-nesting tagged females have all remained within the MHI, further supporting the possibility that Hawai‘i’s hawksbill sea turtle may be a discrete central Pacific population.

Nearly all hawksbill nesting and foraging in Hawai‘i occurs in the MHI. Females nest in a variety of habitats including black and white sand beach, small pocket coves covered in cobbles or rugged lava, and in beach vegetation. Since monitoring began in 1989, hawksbill nesting activity has been confirmed at 22 sites in the MHI: 13 on the Island of Hawai‘i, 8 on Maui, and 1 on Moloka‘i. Nesting may occur on the windward coast of O‘ahu. Over 90% of the documented hawksbill nesting activity in Hawai‘i occurs along the Ka‘ū Coast of the Island of Hawai‘i. Regular nesting also occurs on Maui and Moloka‘i. According to satellite tracking, the Hamakua Coast of the Island of Hawai‘i appears to be an important foraging area for hawksbill sea turtle.

Hawksbill nesting activities were first documented on Maui in 1991 at Kealia. Hawksbill turtle nesting has been documented at Little Beach and Oneloa (King, 2015). The most likely impact to hawksbill turtles may come in the form of increased useage of Maluaka Beach and the nearshore environment. This area may be used by post-recruitment juvenile and adult hawksbill turtles sheltering and foraging in and near the beach Data are insufficient to estimate hawksbill density in Hawaiian waters off the Project area.

As with green turtle, destruction and alteration of habitat, as well as direct harvest are considered the major threats to the hawksbill. Climate change also appears to be a growing threat. Destruction and alteration of hawksbill nesting and foraging habitats is occurring throughout the species’ global range, especially through coastal development, beach armoring, beachfront lighting, vehicular/pedestrian traffic, invasive species, and pollution from discharges and runoff. The adverse impacts of these threats described for green sea turtle are the same for hawksbill sea turtle (NMFS & USFWS, 2007b). The Project does not involve any alteration of the shoreline, beach armoring, beachfront lighting, etc., thereby minimizing Project-related impacts to sea turtles.

Monk Seal — The endangered Hawaiian monk seal (*Monachus schauinslandi*) is known to occur in the waters off Makena. The majority of Hawaiian monk seal

sighting information collected in the main Hawaiian Islands is reported by the general public and, therefore, highly biased by location and reporting effort. The only truly systematic monk seal count data available for the main Hawaiian Islands are from aerial surveys conducted by the Pacific Islands Fisheries Science Center (PIFSC) in 2000, 2001, and 2008 (Baker and Johanos 2004, PIFSC unpublished data). No Hawaiian monk seals were sighted in the Mākena area during these three complete surveys of Maui.

Reports by the general public, which are non-systematic and not representative of overall seal use of main Hawaiian Island shorelines, have been collected in the main Hawaiian Islands since the early 1980s. For the purposes of the report from PIFSC[4], a sighting is defined as a calendar day during which an individual seal is documented as present at a specific location. The PIFSC report summarized all documented sightings of Hawaiian monk seals in the Makena area, from Palauea Beach to `Ahihi Cove, on the island of Maui for the years 2015 through 2024 (Johanos, 2025*a*-*c*). There have been 206 reported sightings of monk seals from Palauea Beach to ʻAhihi Cove from 2015 to 2024 (Table 8). Sighting locations were recorded based on reported location and were generated from a list of standardized location names and include ʻAhihi Cove, Big Beach, Bubble Cave, Five Graves, Little Beach, Mākena Cove, Mākena Landing, Maluaka Beach Park, Oneʻuli Beach, Palauea Beach, Poʻolenalena Beach, and Puʻu Olai. Of the total sightings, 76 reports can be attributed to 14 uniquely identifiable seals (Table 9). No monk seal births have been documented in the area from Palauea Beach to ʻAhihi Cove.

Critical habitat for Hawaiian monk seals has been designated (NOAA-NMFS, 2015). Hawaiian monk seal critical habitat includes the seafloor and marine habitat to 10 m above the seafloor from the 200 m depth contour through the shoreline and extending into terrestrial habitat 5 m inland from the shoreline between specified boundary points. The waters offshore of the Project area are designated monk seal marine critical habitat. The shore in the Project area falls within boundary points MA101 to MA102 (South of Kīhei Boat Ramp through ʻAhihi Bay; 20°42′27″ N to 20°37′39″ N) and is therefore included in monk seal terrestrial critical habitat (NOAA-NMFS, 2015).

[4] PIFSC data report; DR-25-05 https://doi.org/10.25923/wwt7-ek86; provided to AECOS April 7, 2025.

Table 8. Number of reported Hawaiian monk seal sightings in Makena area, between Palauea Beach and ʻAhihi Cove (2015 to 2024).

Location	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	**Total**
ʻAhihi Cove	11	5	0	1	9	8	3	0	2	1	**40**
Big Beach, Mākena State Park	12	0	1	0	4	8	3	1	3	5	**37**
Bubble Cave	1	1	2	0	1	0	2	0	0	0	**7**
Five Graves	0	0	0	0	1	1	2	1	3	3	**11**
Little Beach, Mākena State Park	3	0	0	0	5	4	5	0	6	0	**23**
Mākena Cove	2	0	0	0	1	1	0	0	0	4	**8**
Mākena Landing	1	1	2	0	0	5	0	0	5	4	**18**
Maluaka Beach Park	0	0	1	0	2	2	1	1	2	0	**9**
Oneʻuli Beach	3	4	0	0	2	0	1	1	4	8	**23**
Palauea Beach	1	0	0	0	0	2	0	0	0	2	**5**
Poʻolenalena Beach	1	0	0	0	0	0	0	0	0	2	**3**
Puʻu Olaʻi	3	0	0	1	1	5	3	5	2	2	**22**
Total	**38**	**11**	**6**	**2**	**26**	**36**	**20**	**9**	**27**	**31**	**206**

Impact Assessment

Indirect Impacts

Indirect impacts to the biological assemblage of the reef off Makena are expected in the short-term during construction, as well as long-term due to development and increased coastal use. The proposed development would increase both the amount of impervious surfaces and land-based vehicle and machinery activities near and along portions of the coast. This could result in an increase in storm water run-off and pollutants entering the ocean. Sedimentation, as a result of both natural processes and human activities, can significantly impact coral population structures and be one of the main drivers of reef degradation (Rogers,

1990). Increased sediment loading of coastal waters can increase water turbidity and lead to lower light available for photosynthesis (Rogers, 1990; Philipp and Fabricius, 2003), increase nutrients (Fabricius, 2005), reduce feeding surfaces responsible for catching prey (Telesnicki and Goldberg, 1995), and in extreme cases, bury entire coral colonies (Jokiel et al., 1993). Coral reproduction and recruitment can also be affected by terrestrial runoff (Fabricius, 2005). Nutrient enrichment has been shown to affect fecundity, oocyte size, fertilization rate, and embryo development in acroporid corals (Ward and Harrison, 2000; Harrison and Ward, 2001; Cox and Ward, 2002) and sedimentation has been shown to affect processes such as larval settlement, recruit survival, and juvenile growth (Rogers, 1990; Te, 1992; Gilmour, 1999; Fabricius, 2005).

Table 9. Number of sightings of uniquely-identified Hawaiian monk seals reported off Mākena, between Palauea Beach and ʻAhihi Cove (2015 to 2024).

Seal ID	Sex	Sightings	Survival Status
R00K	Female	2	Alive 2024
R308	Female	5	Alive 2024
R329	Female	17	Last sighted 2016
R417	Male	2	Alive 2024
R4DF	Female	2	Last sighted 2016
R8HE	Female	1	Alive 2024
RA20	Female	4	Alive 2024
RB00	Female	1	Alive 2024
RG22	Male	9	Last sighted 2021
RH86	Female	19	Alive 2024
RKA0	Female	1	Alive 2024
RS06	Male	3	Alive 2024
RV16	Female	6	Last sighted 2018
RW12	Male	4	Alive 2024
Total		**76**	

Overall, the offshore coral reef has relatively low coral cover, with a size class distribution in which the preponderance of coral heads is in small size classes (<10 cm). Such a distribution suggests either a recent, severe disturbance or frequent recurrences of moderate disturbances. After such disturbances recruitment and growth have been relatively recent processes. Other factors include shifting sand beds and sand scour due to wave action.

The potential exists for Project-related activities to impact the offshore reef community. Proper construction best management practices (BMPs) must be implemented, and a water quality monitoring plan should be developed to ensure Project activities do not degrade marine water quality off the development. We also suggest biological monitoring programs be developed to track densities and distribution of macroalgae, macroinvertebrates, and changes in the health of corals.

Listed and Protected Species

Adult green turtles forage in shallow nearshore areas and coral reefs off Makena. A total of 29 green sea turtles were observed in our 2019 survey of the Project area: 4 during our underwater survey and 25 during our shore survey. During our 2025 survey, 2 green turtles were observed during out underwater surveys. Additionally, during our 2019 survey event, one macroalgal species (*Ulva* sp.) consumed by green turtles was observed on the shoreline and offshore Makena. Contamination from effluent discharges and runoff from the Project area has the potential to degrade these habitats, and invasive species may reduce native algae species preferred by green turtles or could exacerbate susceptibility to, or development of disease.

Future Biological Monitoring

As previously recommended, biological monitoring should be undertaken, focused on the specific biological components of particular interest to the resource and permitting agencies and beginning immediately before the start of construction. If preventable degradation of this marine ecosystem starts to occur, the long-term viability of the Project could be diminished. Fixed quadrat or transects should be placed in locations representative of the best coral growth off the coast in the Project vicinity and need not be set up in relation to an ongoing water quality monitoring program (*AECOS*, 2019) or previous biological monitoring efforts (MRC, 2006; *AECOS*, 2016; this report).

At these monitoring locations, the following should be quantified: (1) coral colony size-frequency (size, diversity, new recruits, large colonies, health, bleaching conditions); (2) diversity, size, density, and biomass of fishes; (3) algae (including crustose coralline algae) and seagrass; and (4) non-coral macro-invertebrates greater than 3 cm. To capture long-term trends, monitoring frequency should be annually for a period of at least ten years. Long-term coral monitoring programs (see Coles & Brown, 2007) suggest including a provision to undertake special event-driven surveys (for example, after a tsunami, significant land runoff event, or massive bleaching event) as important to demonstrate the impact of events unrelated to the Project itself. Additionally, control stations

should be included in the monitoring effort to capture non-Project-related influences to the marine environment (ie warming event or large storm event).

Enhanced macroalgae growth is a potential indirect impact from further development along this coast. This problem does not exist at present, and the likelihood is regarded as small. However, monitoring for such events would be beneficial. Monitoring would need to be in shallow water, but determining exact locations is difficult in the absence of any past or present problems. We suggest resort management become attuned to unusual events at the shore and report these to the biological monitoring team. For their part, the biological monitoring team, during the annual offshore monitoring survey, include a walk along the entire relevant shore noting qualitative abundances of algae species in the littoral zone or washed up on beaches, in addition to quantification during in-water reef surveys. Over time, these notes should reveal whether changes are occurring. If changes do occur or resort management reports excessive algae or other biota washing up on the shore, an investigation should be conducted and a more quantitative monitoring effort implemented.

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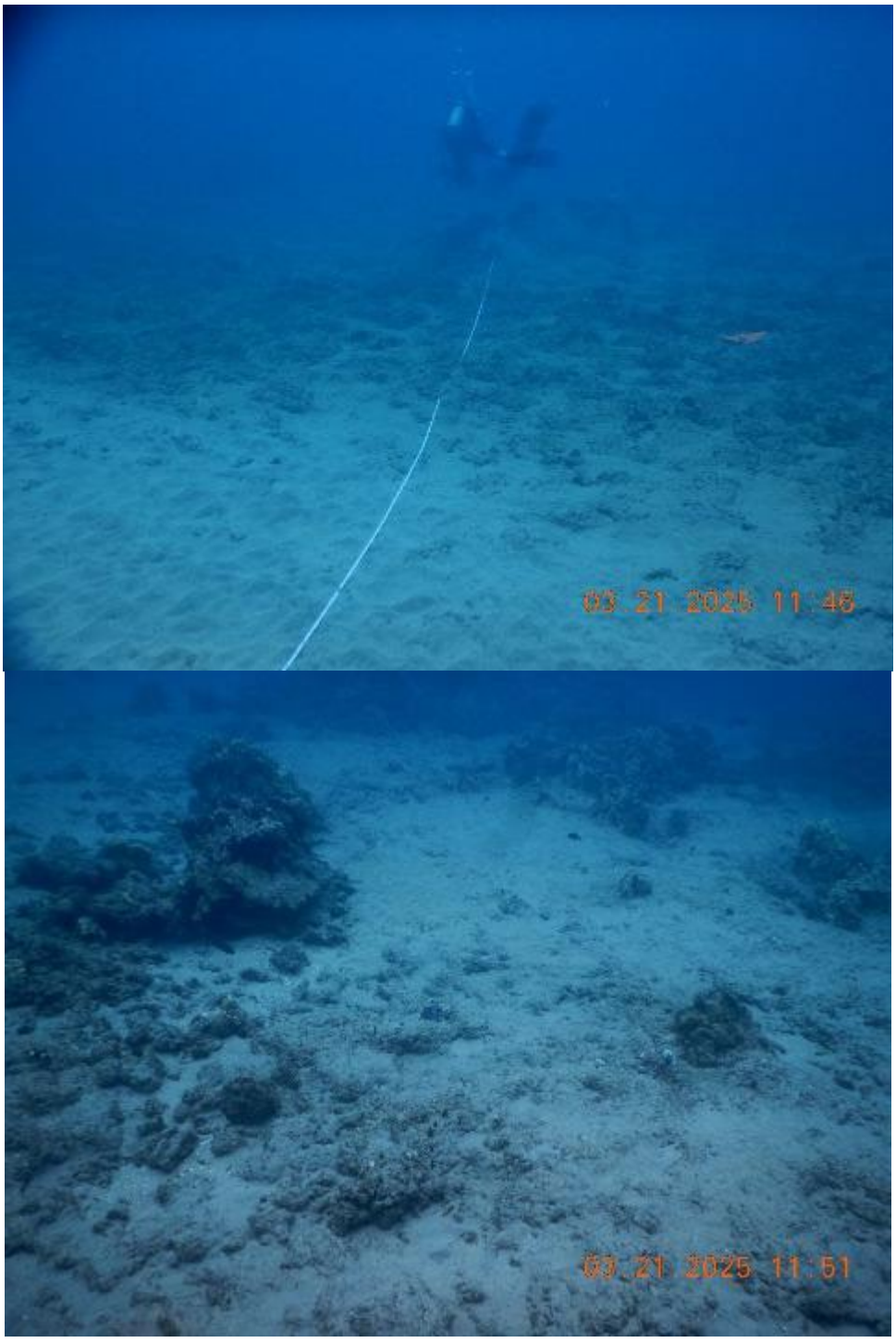
Appendix A

Representative photos taken from across 15 survey stations in the Mākena Mauka Project area and vicinity, Makena, Maui, March 2025.



At Station CHB1, limestone pavement with scattered coral heads makes up the bottom type. Large patches of coral outcrops are common.



At Station CHB2, sand, limestone pavement are the dominant bottom types. Coral outcrops are rare.



Coral makes up the majority of the bottom type at Station CHB3 Sand channels dissect the coral patches.



At Station CBH4, coral makes up most of the bottom type. Large outcrops of *P. compressa* are common.



At Station HB1, coral makes up the majority of the bottom type



At Station UN2, sand makes up the bottom; corals are uncommon.



At Station HB2, limestone pavement with coral outcrops is the dominant bottom type. The triangle used for our ortomosiac mapping is shown in the bottom photo.



At Station UC3, sand makes up the bottom; corals are uncommon. Meadows of the green alga, *Halimeda kanaloana* occur in the sand.



At Station UC4, sand makes up the bottom, with patches of the green alga, *Halimeda kanaloana*. Corals outcrops commonly occur.



At Station UC8, sand and limestone pavement make up the bottom. Meadows of the green alga, *Halimeda kanaloana*.

Appendix B

Inventory of marine biota observed in the Mākena Mauka Project area and vicinity, Makena, Maui, March 2025.

PHYLUM, CLASS, ORDER, FAMILY *Species*	Common name	Status	Abundance
	ALGAE		
CYANOPHYTA	CYANOBACTERIA		
Leptolyngbya crosbyana		Ind.	U
Lyngbya majuscula		Ind.	C
Symploca hydnoides		Ind.	U
CHLOROPHYTA	GREEN ALGAE		
Caulerpa serrulata	saw caulerpa	Ind.	U
Halimeda kanaloana		End.	A
Halimeda opuntia			U
Neomeris sp.			U
RHODOPHYTA	RED ALGAE		
Ahnfeltiopsis concinna			C shore
Hydrolithon gardineri		Ind.	O
Hydrolithon onkodes		Ind.	R
Hydrolithon reinboldii		Ind.	O
Sporolithon erythraeum	patchy red coralline algae	Ind.	O
OCHROPHYTA	BROWN ALGAE		
Padina sanctae-crucis		Ind.	R
Sargassum polyphyllum	variable sargassum	End.	U shore
Turbinaria ornata		Ind	U shore
Dictyota sp.			U
	INVERTEBRATES		
CHONDRILLIDAE			
Spheciospongia vagabunda	vagabond boring	Nat.	C
CNIDARIA, HYDROZOA, ANTHOATHECATA	HYDROIDS		
Pennaria disticha	Christmas tree hydroid	Nat.	O
CNIDARIA, ANTHOZOA, ZOANTHINARIA	ZOANTHIDS		
Zoanthus spp.	zoanthid		R
Palythoa caesia	blue grey zoanthid	Ind.	R
Palythoa tuberculosa	pillow zoanthid	Ind.	R
Heteractis malu	sand anemone		R
CNIDARIA, ANTHOZOA, SCELRACTINIA	HARD CORALS		
POCILLOPORIDAE			
Pocillopora damicornis	lace coral	Ind.	R
Pocillopora grandis	antler coral	Ind.	R
Pocillopora meandrina	cauliflower coral	Ind.	U[5]
PORITIDAE			
Porites brighami	Brigham's coral, *pōhaku puna*	End.	R
Porites compressa	finger coral, *pōhaku puna*	Ind.	A

[5] In our 2019 survey, all *Pocillopora meandrina* colonies observed displayed partial or full bleaching. In our 2025 survey, bleaching was not encountered.

PHYLUM, CLASS, ORDER, FAMILY *Species*	Common name	Status	Abundance
PORITIDAE (cont.)			
Porites lobata	lobe coral, *pōhaku puna*	Ind.	A
FAVIIDAE			
Cyphastrea ocellina	ocellated coral	Ind.	R
Leptastrea bewickensis	bewick coral	Ind.	U
FUNGIIDAE			
Fungia sp.	razor coral	Ind.	R
AGARICIIDAE			
Pavona varians	false brain coral	Ind.	U
ACROPORIDAE			
Montipora capitata	rice coral	Ind.	O
Montipora patula	sandpaper coral	End.	R
ANNELIDA, POLYCHAETA, SERPULIDAE	WORMS		
Spirobranchus giganteus	Christmas-tree worm, *kio*	Ind.	O
TEREBELLIDAE			
Thelepus setosus	brown tube worm	Ind.	R
AMPHINOMIDAE			
Pherecardia striata	lined fireworm	Ind.	R
MOLLUSCA, GASTROPODA, NERITIMORPHA, NERITIDAE	SNAILS and SLUGS		
Nerita picea	common nerite; *pipipi*	End	C shore
LITTORINIMORPHA, LITTORINIDAE			
Littoraria pintado	dotted periwinkle	Ind.	C shore
HETEROBRANCHIA, SIPHONARIIDAE			
Siphonaria normalis	false limpet	Ind.	O shore
PATELLIDAE			
Cellana exarata	black foot ʻopihi, *ʻopihi-ʻawa*	End.	O
VERMETIDAE			
Serpulorbis variabilis	variable worm snail, *kauna'oa*	Ind.	O
CASSIDIDAE			
Cassis cornuta	horned helmet, *pū puhi*	Ind.	O
TEREBRIDAE			
Duplicharia gouldi	Gould's auger, *pūpū loloa*	End.	R
Terebra maculata	marlinspike auger, *pūpū ʻole*	End.	R
CONIDAE			
Conus marmoreus	marbled cone	Ind.	R
Conus pulicarius	flea cone	Ind.	R

PHYLUM, CLASS, ORDER, FAMILY *Species*	Common name	Status	Abundance
CYPRAEIDAE			
Cypraea tigris schilderiana	tiger cowry	Ind.	R
NUDIBRANCHIA, DORIDACEA, ASTERONOTIDAE	DORIDS		
Goniobranchus vibrata	trembling nudibranch	Ind.	R
Halgerda terramtuentis	gold lace nudibranch	End.	R
MOLLUSCA, BIVALVIA, OSTREIDA, OSTREIDAE	BILVAVES		
Dendostrea sandvicensis	Hawaiian oyster	End.	R
MOLLUSCA, BIVALVIA, PTERIIDAE			
Hippopus hippopus			R
Pinctada galtsoffi	black-lipped pearl oyster	Ind.	U
ARTHROPODA, CRUSTACEA, MALACOSTRACA, DECAPODA	TRUE CRABS		
DIOGENIDAE	HERMIT CRABS		
Calcinus laevimanus	left-handed hermit crab	Ind.	R
Cilioparugus striatus	cone shell hermit crab	Ind.	R
Calcinus latens	hidden hermit crab	Ind.	R
Calcinus seurati	Seurat's hermit crab	Ind.	R
Dardanus sanguinocarpus	bloody hermit crab	Ind.	R
OCYPODIDAE			
Ocypode ceratophthalma	horned ghost crab; *'ohiki*	Ind.	R beach
Ocypode pallidula	pallid ghost crab	Ind.	U beach
PORTUNIDAE	SWIMMING CRABS		
Portunus sanguinolentus	blood-spotted swimming crab	End.	R
GRAPSIDAE	ROCK CRABS		
Grapsus tenuicrustatus	thin-shelled rock crab; *'a'ama*	Ind.	O-shore
ARTHROPODA, CRUSTACEA, STOMATOPODA	MANTIS SHRIMP		
Pseudosquilla ciliata	ciliated mantis shrimp	Ind.	R
ECHINODERMATA, ECHNOIDEA ECHINOMETRIDAE	SEA URCHINS		
Colobocentrotus atratus Linnaeus	shingle or helmet urchin; *ha'uke'uke*	Ind.	C-shore
Echinometra mathaei	rock boring urchin; *'ina kea*	Ind.	C
Echinometra oblonga	oblong boring urchin; *'ina*	Ind.	O
Heterocentrotus mamillatus	red pencil urchin; *hā'uke'uke'ula'ula*	Ind.	O

PHYLUM, CLASS, ORDER, FAMILY *Species*	Common name	Status	Abundance
DIADEMATIDAE			
Diadema paucispinum	long-spined urchin; *wana hālula*	Ind.	O
Echinothrix calamaris	banded urchin	Ind.	C
TOXOPNEUSTIDAE			
Tripneustes gratilla	collector urchin; *hāwa'e maoli*	Ind.	C
Pseudoboletia indiana	pebble-collector urchin		R
OPHIUROIDEA	BRITTLE STARS		
Ophiocoma erinaceus	spiny brittle star	Ind.	R
ASTEROIDEA	SEA STARS		
Culcita novaeguineae	cushion star	Ind.	O
ECHINASTERIDAE			
Linckia guildingi	green linckia	Ind.	C
HOLOTHUROIDEA, HOLOTHURIDAE	SEA CUCUMBERS		
Holothuria atra	black sea cucumber; *loli okuhi kuhi*	Ind.	R
Holothuria whitmaei	teated sea cucumber	Ind.	O
CHORDATA, CHONDRICHTHYES, MYLIOBATIFOROMES, DASYATIDAE			
Dasyatis latus	broad stingray	Ind.	R
CHORDATA, ACTINOPTERYGII PERCIFORMES	BONY FISHES		
APOGONIDAE			
Apogon sp.	cardinalfish	---	R
Pristiapogon kallopterus	iridescent cardinalfish	Ind.	O
ECHENEIDAE	REMORAS		
Remora remora	common remora	Ind.	R
GOBIIDAE	GOBIES		
Gnatholepis anjerensis	eyebar goby	Ind.	R
Psilogobius manlandi	Hawaiian shrimp goby	End.	R
BLENNIIDAE	BLENNIES		
Plagiotremus ewaensis	Ewa fang blenny	Ind.	R
ACANTHURIDAE	SURGEONFISHES and UNICORNFISH		
Acanthurus achilles	achilles tang, *pākuʻikuʻi*	Ind.	O
Acanthurus blochii	ringtail surgeonfish	Ind.	R
Acanthurus dussumieri	whitespine surgeonfish, *palani*	Ind.	R
Acanthurus nigrofuscus	brown tang, *māʻiʻiʻi*	Ind.	A

PHYLUM, CLASS, ORDER, FAMILY *Species*	Common name	Status	Abundance
ACANTHURIDAE (cont.)			
Acanthurus olivaceus	orangeband surgeonfish, *na'ena'e*	Ind.	C
Acanthurus xanthopterus	yellowfin surgeonfish, *pualu*	Ind.	U
Ctenochaetus strigosus	goldring surgeonfish, *kole*	End.	O
Zebrasoma flavescens	yellow tang, *lauʻīpala*	Ind.	A
Naso brevirostris	paletail unicornfish, *kala lōlō*	Ind.	C
Naso lituratus	orangespine surgeonfish, *umauma lei*	Ind.	U
Naso unicornis	bluespine unicornfish	Ind.	R
Zebrasoma veliferum	sailfin tang		R
POMACANTHIDAE	ANGELFISH		
Centropyge potteri	Potter's angelfish	Ind.	O
Centropyge loriculus	flame angelfish	Ind.	R
AULOSTOMIDAE	TRUMPETFISH		
Aulostomus chinensis	Chinese trumpetfish; *nunu*	Ind.	U
LETHRINIDAE	EMPEROR		
Monotaxis grandoculis	bigeye emperor, *mū*	Ind.	U
ZANCLIDAE			
Zanclus cornutus	moorish idol, *kihikihi*	Ind.	U
BOTHIDAE	FLATFISH		
Bothus pantherinus	panther flounder, *pākiʻi*	Ind.	U
Aseraggodes sp.	sole		R
POMACENTRIDAE	DAMSELFISH		
Chromis agilis	agile chromis	Ind.	C
Chromis ovalis	oval chromis	End.	C
Chromis hanui	chocolate dip chromis	End.	C
Chromis vanderbilti	blackfin chromis	Ind.	C
Dascyllus albisella	Hawaiian dascyllus, *ʻāloʻiloʻi*	End.	O
Plectroglyphidodon imparipennis	bright-eye damselfish	Ind.	U
Plectroglyphidodon johnstonianus	blue-eye damselfish	Ind.	U
Stegastes marginatus	Hawaiian gregory	End.	O
PTERELOEOTRIDAE	DARTFISH		
LABRIDAE			
Ammolabrus dicrus	sand wrasse	Ind.	R
Coris gaimard	yellowtain coris, *hīnālea ʻakilolo*	Ind.	O
Cymolutes lecluse	Hawaiian razorfish	End.	R
Oxycheilinus unifasciatus	ringtail wrasse, *poʻou*	Ind.	R
LABRIDAE (cont.)			

PHYLUM, CLASS, ORDER, FAMILY *Species*	Common name	Status	Abundance
Gomphosus varius	bird wrasse, *hīnālea ʻiʻiwi*	Ind.	U
Iniistius aneitensis	whitepatch razor wrasse, *laenihi*	Ind.	R
Novaculichthys taeniourus	rockmover wrasse	Ind.	O
Oxycheilinus bimaculatus	two spot wrasse	Ind.	U
Pseudocheilinus evanidus	disappearing wrasse	Ind.	R
Pseudojuloides cerasinus	small tail or pencil wrasse	Ind.	R
Pseudocheilinus octotaenia	eightline wrasse	Ind.	R
Pseudocheilinus tetrataenia	fourline wrasse	Ind.	U
Stethojulis balteata	belted wrasse, *ʻomaka*	End.	U
Thalassoma duperrey	saddle wrasse; *hinalea lauwili*	End.	O
SCARIDAE	PARROTFISH		
Scarus psittacus	palenose parrotfish, *uhu*	Ind.	U
Scarus rubroviolaceus	redlip parrotfish		R
Calotomus carolinus	stareye parrotfish, *pōnuhunuhu*	Ind.	U
Chlorurus spilurus	bullethead parrotfish	Ind.	R
CHAETODONTIDAE	BUTTERFLYFISH		
Chaetodon kleinii	sunburst butterflyfish	Ind.	O
Chaetodon lunula	raccoon butterflyfish, *kīkākapu*	Ind.	O
Chaetodon lunulatus	oval butterflyfish		U
Chaetodon multicinctus	multiband butterflyfish, *kīkākapu*	End.	C
Chaetodon ornata	ornate butterflyfish, *kīkākapu*	Ind.	U
Chaetodon auriga	threadfin butterflyfish; *kīkākapu*	End.	O
Chaetodaon quadrimaculatus	four spot butterflyfish	Ind.	R
Forcipiger sp.	forcepsfish/longnose butterflyfish, *lau wiliwili nukunukuʻoiʻoi*	Ind.	R
TETRAODONTIDAE			
Canthigaster amboinensis	ambon toby	Ind.	O
Canthigaster jactator	Hawaiian whitespotted toby	End.	C
BALISTIDAE	TRIGGERFISH		
Melichthys niger	black triggerfish; *humuhumu ʻeleʻele*	Ind.	C
Melichthys vidua	pinktail triggerfish; *humuhumu hiʻu kole*	Ind.	C

BALISTIDAE (cont.)

PHYLUM, CLASS, ORDER, FAMILY *Species*	Common name	Status	Abundance
Rhinecanthus aculeatus	lagoon triggerfish; *humuhumu nukunuku apua'a*	Ind.	O
Rhinecanthus rectangulus	reef triggerfish; *humuhumu nukunuku apua'a*	Ind.	U
Sufflamen bursa	lei triggerfish; *humuhumu lei*	Ind.	C
Sufflamen fraenatum	bridled triggerfish; *humuhumu mimi*	Ind.	R
MONACANTHIDAE	FILEFISHES		
Cantherhines dumerilii	barred filefish, *'ō'ili*	Ind.	R
CIRRHITIDAE			
Paracirrhites arcatus	arc-eye hawkfish, *piliko'a*	Ind.	U
Paracirrhites forsteri	blackside hawkfish, *hilu piliko'a*	Ind.	U
OSTRACIIDAE			
Ostracion meleagris	spotted boxfish; *moa*	Ind.	U
MULLIDAE	GOATFISH		
Parupeneus cyclostomus	blue goatfish	Ind.	R
Parupeneus pleurostigma	sidespot goatfish, *malu*	Ind.	C
Parupeneus multifasciatus	manybar goatfish; *moano*	Ind.	C
Upeneus taeniopterus	bandtail goatfish, *weke pueno*	Ind.	R
Parupeneus insularis	double bar/ island goatfish	Ind.	U
HOLOCENTRIDAE	SOLDIERFISH		
Myripristis berndti	bigscale soldierfish; *'ū'ū*	Ind.	R
Myripristis sp.	unid. soldierfish	Ind.	U
MURAENIDAE	MORAY EELS		
Callechelys lutea	freckeld snake eel	End.	R
Echidna nebulosa	snowflake eel		R
Echidna polyzona	barred moray, *puhi leihala*	Ind.	R
Gymnothorax meleagris	whitemouth moray; *puhi 'ōni'o*	Ind.	R
Gymnothorax undulates	Undulated moray; *puhi laumilo*	Ind.	R
CARANGIDAE			
Caranx melampygus	bluefin trevally; *'ōmilu*	Ind.	R
Decapterus macarellus	mackeral scad; *'ō pelu*	Ind.	R
Elagatis bipinnulata	rainbow runner; *kamanu*	Ind.	R
SYNODONTIDAE			
Trachinocephalus myops	snakefish, *wele'ā*	Ind.	R
FISTULARIIDAE			

PHYLUM, CLASS, ORDER, FAMILY *Species*	Common name	Status	Abundance
Fistularia commersonii	bluespotted cornetfish; *nunu peke*	Ind.	O
SERRANIDAE			
Cephalopholis argus	peacock grouper; *roi*	Nat.	R
	REPTILES		
CHORDATA, REPTILIA			
CHELONIIDAE			
Chelonia mydas	green sea turtle; *honu*	Ind.	O

KEY TO SYMBOLS USED:

Abundance categories:

R – Rare – only one or two individuals observed.
U – Uncommon – several to a dozen individuals observed.
O – Occasional – seen irregularly in small numbers
C – Common -observed everywhere, although generally not in large numbers.
A – Abundant – observed in large numbers and widely distributed.

Status categories:

End. – Endemic – species found only in Hawai‘i
Ind. – Indigenous – species found in Hawai‘i and elsewhere
Nat. – Naturalized – species were introduced to Hawai‘i intentionally or accidentally.

Appendix C

Representative Orthomosaics across the Project area, March 2025.



Orthomosaic of Station HB5.



Orthomosaic of Station CHB1.

WATER RESOURCES REPORT (AKINAKA & ASSOCIATES, LTD.)

APPENDIX

M



Mākena Mauka Project
WATER RESOURCES REPORT

Prepared For:

AREG AC Makena Propco LLC dba Mākena Golf & Beach Club Owners
5415 Makena Alanui Road
Wailea-Makena, Hawai‘i 96753

Prepared By:

AKINAKA & ASSOCIATES, LTD.
CONSULTING CIVIL ENGINEERS

November 2025

Mākena Mauka Project
WATER RESOURCES REPORT

Wailea-Mākena, Maui

Prepared For:

AREG AC Makena Propco LLC dba Mākena Golf & Beach Club Owners
5415 Makena Alanui Road
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November 2025

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M. January 2, 2025, CWRM Monthly Bulletin – ʻĪao Aquifer System Area
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Table of Acronyms

Acronym	Definition
12-MAV	12-month moving average (CWRM)
AMI	Advanced Metering Infrastructure
ASA	Aquifer System Area (CWRM)
CIP	Capital Improvement Project
CMS	Central Maui System (MDWS)
CWRM	Commission of Water Resource Management (SOH)
DLNR	Department of Land and Natural Resources (SOH)
DOH	Department of Health (SOH)
ET	Evapotranspiration
GPD	Gallons per day
GWMA	Ground Water Management Area (CWRM)
GWUP	Ground Water Use Permit
HRS	Hawai'i Revised Statutes (SOH)
IIFS	Interim Instream Flow Standard
LEED	Leadership in Energy and Environmental Design
MDWS	Maui Department of Water Supply
Mgd	Million gallons per day
MMP	Mākena Mauka Project
PET	Potential Evapotranspiration
RAM	Robust Analytical Model
RF	Rainfall
RO	Reverse Osmosis
SDWB	Safe Drinking Water Branch (DOH)
SOH	State of Hawai'i
SWHU	Surface Water Hydrologic Unit (CWRM)
SWUP	Surface Water Use Permit (CWRM)
SY	Sustainable Yield (CWRM)
USACE	U.S. Army Corp of Engineers
WUDP	Water Use and Development Plan (MDWS)
WUP	Water Use Permit (CWRM)
WWRF	Wastewater Reclamation Facility

1. EXECUTIVE SUMMARY

Purpose of Report

The purpose of this report is to provide an assessment of water resources within the Mākena Mauka project area (referred to herein as "MMP", "Mākena Mauka", or "the project") that lie within the Kamaʻole Aquifer System Area (ASA)[1], the Wailea Surface Water Hydrologic Unit (SWHU), and the Moʻoloa SWHU[2] in the Wailea area on the leeward Haleakalā portion of the Island of Maui. Mākena Mauka is a low-density, master-planned residential community featuring market-rate and workforce housing, with a mix of rural, single-family, and multi-family units. Planned for such uses for decades, the project integrates the existing Mākena North and South Golf Courses (with renovations to the South Course) and includes community amenities such as gathering spaces, hiking trails, pedestrian and bike-friendly pathways, public beach parking, and designated conservation areas. The land plan consists of 652 housing units—including 109 onsite workforce units—and approximately 135,000 ft^2 of operational support buildings for golf operations, maintenance, staff offices, and related uses. The 109 workforce units are planned to be supplied by the Maui Department of Water Supply (MDWS), while the rest of the water demands will be supplied by a private water system. The total project area covers approximately 1,044 acres, with 473 acres designated for residential development. Since the project anticipates making improvements in various County and State right of ways, Mākena Golf & Beach Club Owners, herein referred to as "the Client," is preparing an Environmental Impact Statement (EIS) to satisfy Hawai'i Revised Statutes (HRS) 343. This report informs the ground and surface water resources portions for the future EIS.

The report is partially based on information relayed to Akinaka and Associates, Ltd. by the Client for analysis. Additional historical and the latest best ground and surface water information available for the hydrologic units of ground water (Kamaʻole ASA) and surface water (Wailea SWHU and Moʻoloa SWHU) are included in this report. Additionally, since

[1] The Kamaʻole ASA [60304] is a ground water hydrologic unit as defined in the 2019 WRPP [4].
[2] Wailea (6110) and Moʻoloa (6109) SWHU are surface water hydrologic units as defined in the 2019 WRPP [4]

improvements in Mākena Mauka are anticipated to be partly serviced by the MDWS through their Central Maui System (CMS) the ground water hydrologic units of ʻĪao, Waiheʻe , Haiku, and Waikapū ASAs that provide ground water to the CMS and allocations from the ʻĪao-Waikapū Ditch for the CMS are also reviewed in this report.

The State Commission on Water Resource Management (CWRM) is the regulatory body in Hawaiʻi that ultimately manages the ground and surface water resources at the source statewide through the setting of SY, interim instream flow standards (IIFS), monitoring monthly pumpage and diversions from these sources, and approving well and pump installation, stream diversion, and stream channel alteration permits. Additionally, CWRM determines the reasonable and beneficial allocations through water use permits (WUPs) in areas duly designated as water management areas. The Kamaʻole ASA and Wailea & Moʻoloa SWHUs are **not** designated water management areas and as such any wells or stream diversions in those hydrologic units do not require a WUP.

The current SY of the Kamaʻole ASA is 11 million gallons per day (Mgd) and reflects the historically dry and brackish conditions of this large leeward aquifer area. Pumpage (statewide) and allocations (in ground water management areas (GWMA)) are managed on a 12-month moving average (12-MAV) basis.[3] The current 12-MAV pumpage from the Kamaʻole ASA as of January 2025 is 3.660 Mgd, which is 7.340 Mgd lower than and constitutes 33% utilization of the Kamaʻole ASA's (60304) 11 Mgd SY. Based on this and the historically dry and brackish conditions of the Kamaʻole ASA the utility of the hydrologic unit as a water source does not appear to be threatened by current pumpage from the aquifer.

Potable demands for the general Mākena area are currently serviced through the MDWS CMS while future alternative sources are being explored (i.e., local reverse osmosis (RO) or future Haiku ASA sources to feed into the MDWS CMS). The CMS serves the Kīhei-Mākena Community Plan districts within which the MMP resides. According to the County of Maui MDWS 2023 Maui Island Water Use and Development Plan (WUDP) [1], the CMS

[3] 12-month moving average, or 12-MAV, is a rolling 12-month period such that at any point in time the previous 11 months of pumpage are made part of the average to cover complete annual seasonal variations. This is the statistic the CWRM uses to manage pumpages against SY.

provided 12.462 Mgd of water to the Kīhei-Mākena Community Plan area (or Kama‘ole ASA) in 2014.[4] The total average daily water use demand without RO recovery for the MMP is estimated to be 0.917 Mgd while the maximum/peak daily demand is 1.375 Mgd. Excluding golf course demands, the average water use demand is estimated to be 0.528 Mgd and maximum/peak day demand is 0.792 Mgd, which are consistent with recent developments in Maui (see Appendix N). Water meter records from 2024 from recently built multi-family projects in Wailea show annual consumption of 0.659 Mgd for Makali’i (built in 2022) and 0.688 Mgd for Keala O Wailea (built in 2018). Neither of these two projects were LEED certified so additional conservation savings could be realized. These usage figures are generally consistent with MDWS Water System Standards Table 100-18 as well.

The total average water demand with RO recovery is 1.038 Mgd and maximum/peak day water demand is 1.557 Mgd. Ninety-four percent (94%) of the demand will be met by a private water system pumping from the Kama’ole ASA and treated with RO. Due to a RO recovery efficiency of 65%, 1.464 Mgd will be required to be pumped to meet the maximum/peak demand. The rest (6%) of water demand is for the development’s affordable housing, which will be supplied completely by the MDWS CMS. Table 1 summarizes these demands by category.

[4] Table 8-10 MDWS Maui Island WUDP [1]

Table 1. Demand Summary for the Mākena Mauka Project with RO Recoveryby Category

Category	Total Average Demand GPD (with RO Recovery)	Total Maximum/peak Demand GPD (with RO Recovery)
Potable Residential Housing (supplied by private water system)	**345,846**	**518,769**
Potable Affordable Housing (supplied by MDWS CMS)	**61,640**	**92,460**
Non-Potable Irrigation (supplied by private water system)	**630,190**	**945,285**
Total Average Demand	**1,037,676**	**1,556,514**

MDWS can meet the affordable housing potable water needs of the MMP within the CMS from various sources that serve the CMS, and MMP is capable of meeting their other average water demands through a private water system as follows:

- First, MMP plans to rely primarily on private brackish wells as their source to minimize reliance on County water. Akinaka estimates a maximum pumpage of 1.464 Mgd for their uses (see Appendix N). Considering other planned projects in the area and the DHHL reservations, the total additional average pumpage would be within the total 11 Mgd SY established by CWRM for the Kama'ole ASA. Only the planned affordable housing –about 6% of their maximum day water demand or 0.092 Mgd—will be supplied by the MDWS CMS.

- Second, the actual reported non-caprock use from the ʻĪao ASA, where the CMS is mainly sourced from, is 13.157 Mgd based on a 12-MAV as of January 2025, typically the lower pumpage time of the year. This is 6.843 Mgd below the 20

Mgd SY for the ʻĪao ASA and 2.694 Mgd below the current total allocations that count against SY. This is in part due to conservation efforts of the MDWS where metered water use in the CMS has declined over 4% from 2006 to 2020 while water meters increased by 14% from 2006 to 2020 (based on MDWS annual reports). Other non-MDWS allocations amount to 0.026 Mgd, leaving the MDWS with 2.688 Mgd of unused allocation as of January 2025 that could be re-allocated within the MDWS CMS. Under HRS 174C-48, the CWRM must also delegate to the county boards of water supply the authority to allocate the use of water for municipal purposes, subject to the limits of water supply allocated to the county boards of water supply in their role as water purveyors. Therefore, it would appear MDWS and the ʻĪao ASA alone have enough cushion between actual pumpage vs. allocated use to manage and provide for the MMP future needs within the MDWS current allocations.

- Third, the CMS is also supplied by other ASAs, primarily the Waiheʻe ASA (60103), which is currently pumping 69% of its 8 Mgd SY and permitted surface water use from the CWRM designated Na Wai Eha surface water management area. For Waiheʻe ASA, there is a new capital improvement project (CIP) for a 0.5 Mgd Waiheʻe well anticipated to be online by FY28 and for Na Wai Eha.

- Fourth, two additional future ASA sources to increase source supplies are identified in the MDWS 2023 Maui Island WUDP are: 1) from the Haiku ASA that is currently pumping only 3% of its 24 Mgd SY and 2) from the Waikapū ASA, currently pumping only 1% of its 3 Mgd SY. MDWS is currently pursuing feasibility studies required under the East Maui Consent Decree to implement the source strategy for the Haiku ASA, while strategy #3 of the Maui Island WUDP for the Waikapū ASA (60101) adjacent to and south of the ʻĪao ASA is to adapt pumpage of constructed wells in Waikapū ASA with guidance from the 2015 USGS groundwater flow model results.

- Fifth, MMP will be designed to use County R-1 recycled water when available, which will reduce the need for groundwater pumping.

- Sixth, through imported return-irrigation recharge, use of imported R-1 recycled water will help minimize groundwater salinity increases within the project area.

- Seventh, at full build out, the MMP reverse osmosis (RO) treatment process to meet new non-affordable housing related potable demands is expected to produce 181,569 GPD of RO concentrate that can be mixed with brackish well water to offset well pumpage. Overtime, combined with recycled R-1 water availability from the County, there will be an inverse relationship between residential occupancy and the amount of non-potable groundwater pumping required for golf course irrigation.

- Eighth, conservation measures, primarily through Leadership in Energy and Environmental Design (LEED) certified construction for buildings greater than 500 square feet, will be incorporated into the MMP development to continue and further the conservation efforts that have proven effective in the ʻĪao ASA.

Thus, for the reasons stated above, the wells pumping from the Kama'ole ASA and the MDWS CMS can meet the future potable and non-potable average and maximum/peak day demands of the MMP improvements. However, the cumulative maximum/peak day demand for MMP along with other future planned developments and DHHL reservations will be nearing the Kama'ole Aquifer System Area sustainable yield of 11 Mgd.

It is important to note and consider there are recently released U.S. Geological Survey (USGS) scientific studies [2] [3] that predict lower recharge that could result in lowered ground water availability in the future as evidenced by declining rainfall and stream flow over the past several decades. However, these predictions are for mid-to-end of century years (2071 to 2099 (47 to 75 years) with several different scenarios and models. It is not clear if the impacts are correlated more with upper recharge and SY range estimates

specified in the CWRM Water Resource Protection Plan (WRPP) [4] rather than the conservative minimum values that are used. The CWRM will be reviewing these new predictions in an update to the 2019 WRPP and determine if revising current recharge and SY range estimates are required to accommodate these future recharge predictions.

This report also determined the water demands of future development projects in the area to ensure that the cumulative impacts of these projects (including MMP) will not overpump the Kama'ole ASA and the ASAs that CMS is tapping from. In the Kama'ole ASA, we estimate the future pumpage to rise to a maximum/peak of 8.190 Mgd. Including DHHL reservations would increase the maximum/peak pumpage to 10.737 Mgd. Although this would be below the SY of 11 Mgd, this would raise the pumpage to greater than 90% of the SY, which is something that could initiate designation of a GWMA under the CWRM.

To mitigate impacts, MMP will be looking to reduce water demands. They will be ensuring LEED certified construction for buildings 500 square feet and larger and shall implement the following measures:

- Low flow faucets, fixtures, and toilets.
- Utilize R-1 water when available
- Encourage pool evaporation covers.
- Use of non-potable water for landscaping.
- Irrigation systems that use drip lines and moisture sensors.
- Irrigation scheduling during morning and evening hours to avoid high-evaporation times of the day.
- Xeriscaping and use of drought tolerant plants in landscaping, while encouraging native species.
- Rainwater/stormwater catchment and reuse.

2. INTRODUCTION

2.1. Scope

The scope of this report is to primarily:

- Research existing available information including existing utilities and reports within the proximity of the MMP area;
- Provide analysis of water resources portion of the EIS for the MMP;
- Review past reports and public information available at Department of Land and Natural Resources CWRM and other appropriate agencies primarily regarding the status of the Kama‘ole ASA ground water availability.

3. MMP WATER NEEDS

Appendix N summarizes the water demands for MMP. It is based on Table 2 in the November 2025 Water Resource Assessment for the Mākena Mauka Project from Tom Nance Water Resource Engineering (TNWRE) [5] as well as estimates using average consumption demand from Table 100-18 from the MDWS Water System Standards [6]. The total estimated maximum/peak demand for MMP is 1,374,945 gpd. However, MMP is planning to develop their own privately owned and operated water system to supply around 94% of their water demand. The Client plans to use three wells on their property to pump brackish water for their supply, using RO to treat the water for potable demands and leaving the water untreated for irrigation demands.

Of the total maximum/peak demand to be supplied privately, 429,660 gpd will be used for potable use and 945,285 gpd will be used for irrigation. The water planned for potable use must go through RO treatment with 65% recovery, meaning 65% of the water that goes through the treatment is suitable for potable use while the rest (35%) is disposed as brine waste. Thus, it requires the wells to pump up to 518,769 gpd, so that 337,200 gpd (65% of 518,769 gpd) can be yielded for potable use through RO. In total, this requires the wells to pump a total of 1,464,054 gpd or 1.464 MGD of brackish water

from the Kama'ole ASA. This additional pumping by itself would still be well below the aquifer's 11 MGD SY.

The estimated maximum brine waste requiring disposal would be 181,569 gpd (35% of 518,769). TNWRE believes that the brine would likely be too saline for irrigation but may be appropriate for golf course irrigation. However, the DOH maintains that RO reuse cannot be reused for irrigation, and if this stance remains, a disposal well would ultimately be required. Currently, the Client plans to dispose of the waste in a 400,000-gallon lined basin at their own existing private wastewater treatment facility. The RO waste would be allowed to evaporate, leaving behind the salt. These salts would then need to be periodically hauled off to a landfill for disposal. In addition, the Client will consult with the State DOH to assess whether the waste could instead be mixed with irrigation water for the golf course for irrigation purposes.

The total maximum/peak demand that is estimated to be supplied by MDWS CMS is 92,460 gpd or 0.092 Mgd. MMP is already connected to the CMS via a 4" County water line at TMK 2-1-005:108, and this amount of additional pumping will not stress the ʻĪao ASA, where the majority of CMS water comes from, past its SY.

Additionally, the affordable housing project within MMP, which is slated to be 100 percent affordable under section 2.96 of the Maui County Code, is exempt from the "Show Me the Water" requirement under section 14.12 of the Maui County Code. This exemption applies to "subdivisions that will not be regulated as a public water system under department of health rules" and "residential development projects with 100 percent affordable housing units and are within the service area of the department's central or west Maui water system. Consequently, the MMP affordable housing project will be exempt from the "Show Me the Water" requirement and will be served by the MDWS CMS. The remainder of the development will be supplied by a private water system.

4. EXISTING WATER SUPPLY ENVIRONMENT

4.1. Location

Exhibits 1, 2, & 3 are summary maps of the ground and surface water supply and regulatory regimes within which the proposed 1,044 acres of the MMP improvements reside (see also **Appendix A**). Mākena Mauka lies within the Kamaʻole ASA (60304), the Wailea SWHU (6110), and Moʻoloa (6109) SWHU and includes western portions of the Leeward Haleakalā Watershed Restoration Partnership (LHWRP) that are mostly outside Papa'ainui Tract of the Kahikinui Forest Reserve [7] and bordering Department of Hawaiian Home Lands (DHHL) at its most mauka limits. Good historical references for the geology, hydrology, and water distribution systems in the Kamaʻole ASA, the Wailea SWHU, and the Moʻoloa SWHU can be found in Yuen 1990 [8], Stearns [9] [10], Lau [11], and more recently the CWRM's 2019 WRPP [4] and the MDWS 2023 Maui Island WUDP [1]. More detailed localized descriptions of climate, ground water, and surface water sources within the project area are discussed in the following sections of this report.

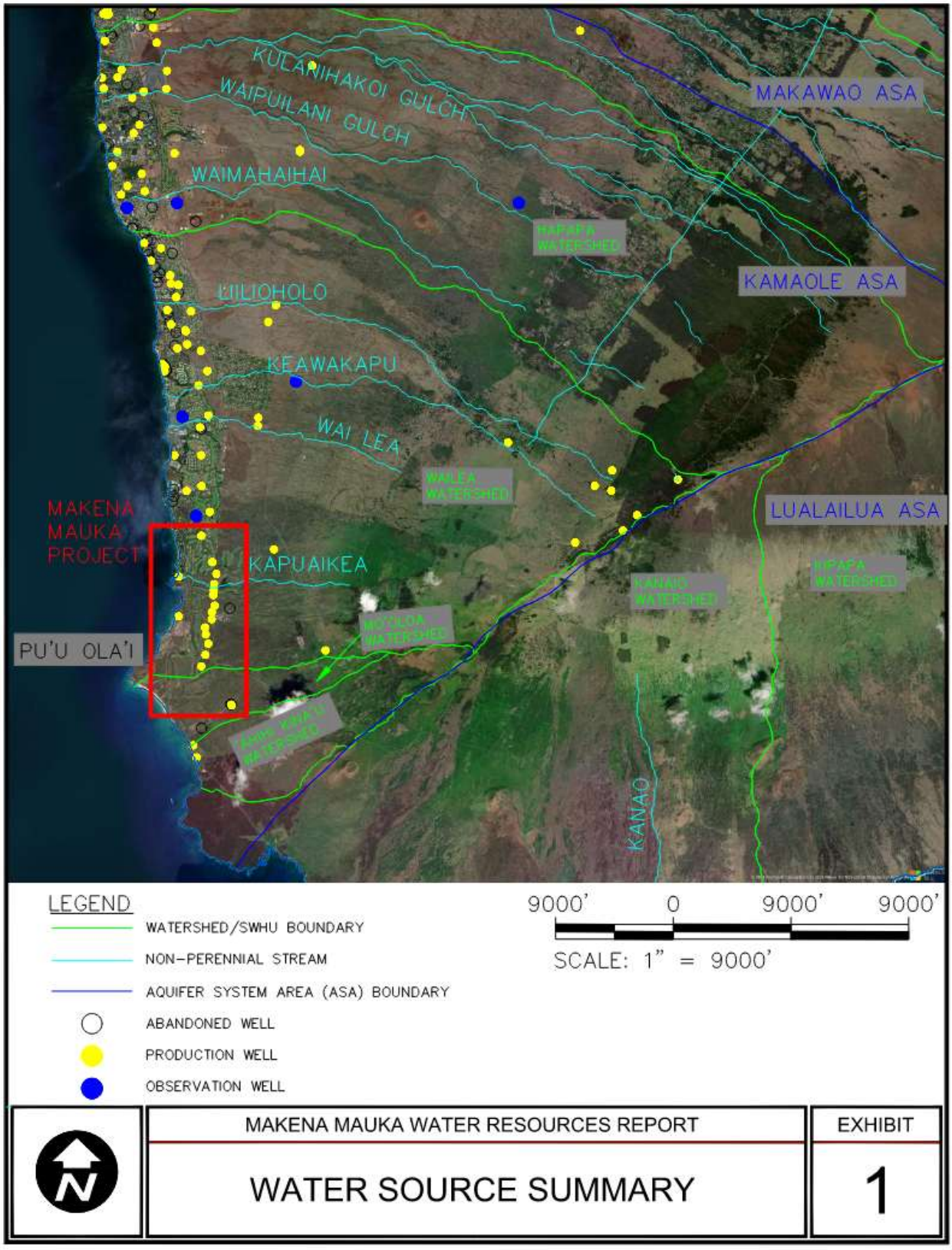

Exhibit 1. Water Source Summary Map

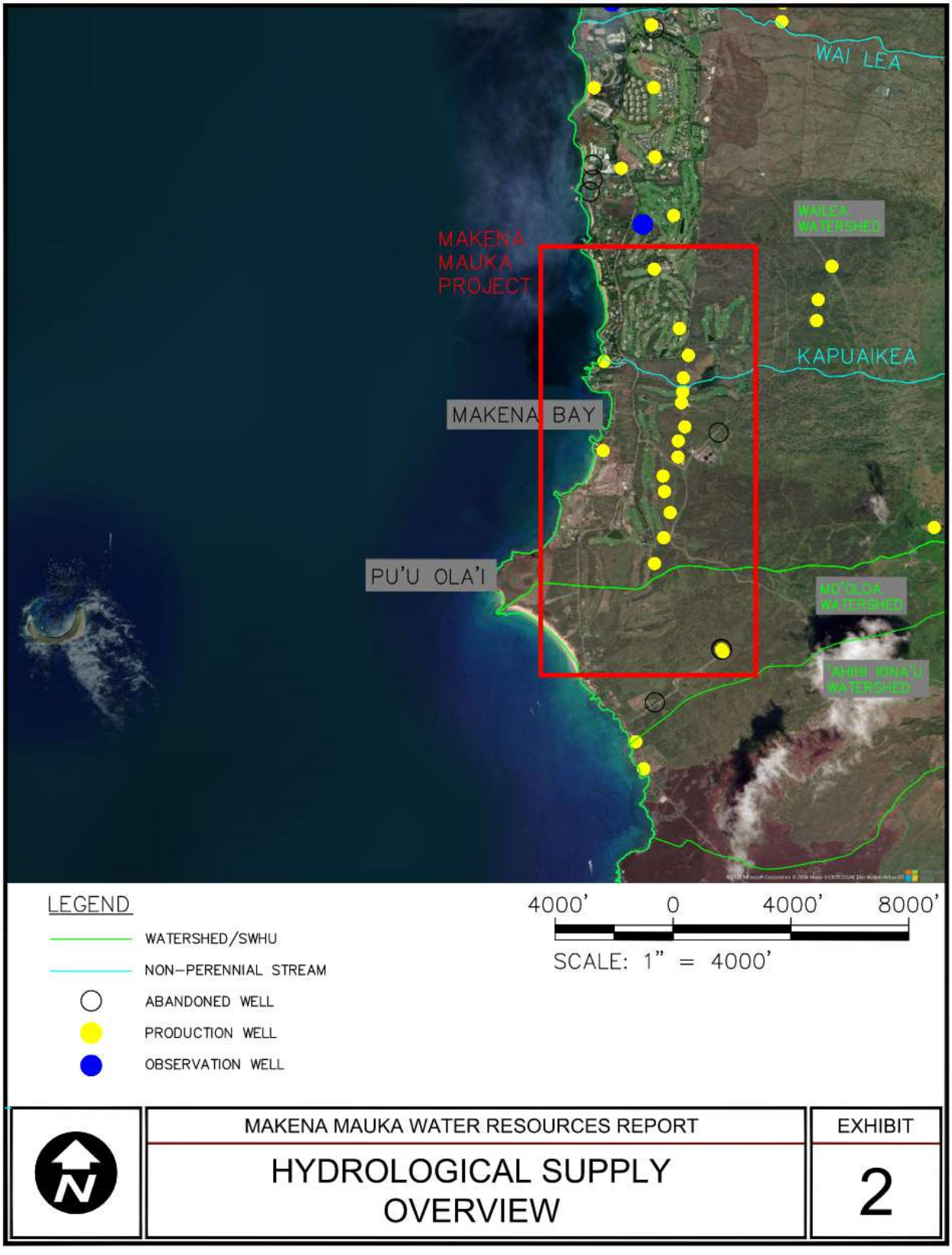

Exhibit 2. Hydrological Supply Overview

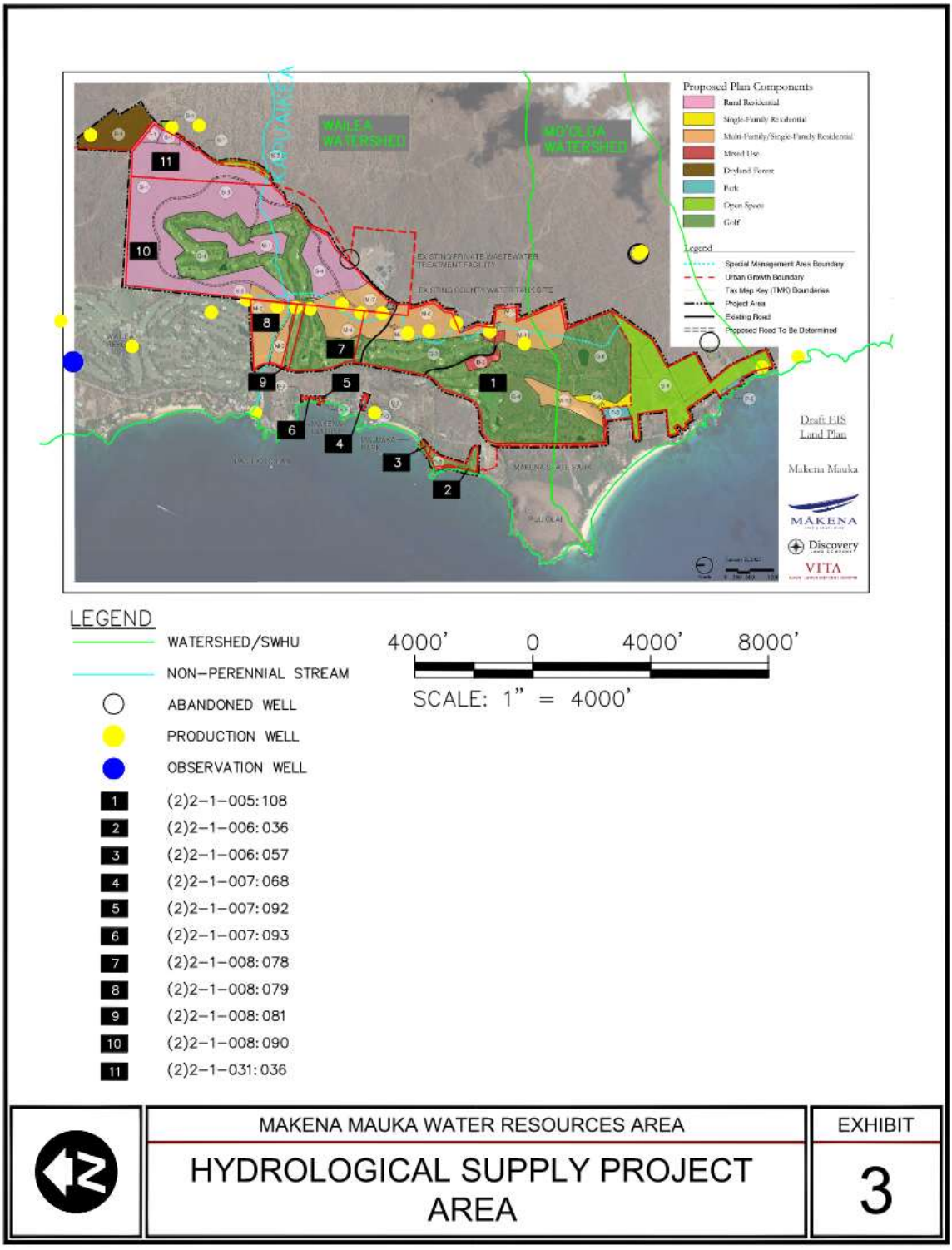

Exhibit 3. Mākena Mauka Project Area Water Source Map (modified Fig. 1 TNWRE [5])

4.2. Climate

The hydrologic water cycle and local climate are the fundamental source for all water of an area. Rainfall (RF) and evapotranspiration (ET) are reviewed in the following sections showing that spatial variations in rainfall and potential evapotranspiration (PET) vary significantly over the region and in the MMP area. Climate change is also a significant issue of concern, and it should be noted there are future pending predictions that raise the uncertainty of how much the climate will remain consistent with long-term trends in the region and the project area. Predicted climate changes could affect the availability of ground water for various drinking and irrigation needs of the MMP while the surface water effects will be more related to water quality and intermittent storm flood events in the historically dry area.

Table 2 summarizes the general climate through RF, ET, and PET ranges for the hydrologic units and MMP areas to show and quantify the "dryness" of the area, which is exemplified by maximum PET exceeding rainfall by approximately five (5) times. **Appendix A** photos show the dry conditions of the project area parcels next to or containing well irrigated golf turf area. **Appendix B and C** provide areas detailed in **Table 2** with more detailed discussions of these parameters explained in the respective following sections of this report.

Table 2. Annual Mean (inches) Ranges

	Annual Mean (inches) Range					
	RF[1]		ET[2]		PET[3]	
Area/Gage	Min	Max	Min	Max	Min	Max
Kama'ole ASA[4]	11	41	3	49[9]	35	285
Red Hill[5]		41[10]	13 – withing range		177 – within range	
Wailea SWHU[6]	11	36	3	45	35	227
Polipoli Spring		36[11]	23 – within range		76 – within range	
MMP[8]	13	16	23	45	79	138
Mākena	5	30	N/A	N/A	N/A	N/A

Notes:
[1] RF = Rainfall
[2] ET = Evapotranspiration
[3] PET = Potential Evapotranspiration
[4] ASA = Aquifer System Area, which is a ground water hydrologic unit
[5] Red Hill is located at HaleNet SKN 339.6
[6] SWHU = Surface water hydrologic unit
[7] Polipoli Spring location is SKN 339.6 gaging system
[8] MMP = Mākena Mauka Project
[9] A 67-inch data point is an anomaly, and all other data is below 41 inches
[10] Annual average since 1955
[11] Annual average since 1990
[12] NOAA Sta – USC00515842 at Mākena Golf Course from 1982 to 2024

4.2.1. Rainfall

RF is spatially variable because of the islands' topography and the persistent northeasterly trade winds. The Hawai'i Climate Data Portal [12] (URL: https://www.hawaii.edu/climate-data-portal/data-portal/) website provides the best estimates for mean RF ranges based on complete historic RF gage records statewide and near Mākena Mauka (see **Appendix B**).

Generally, mean annual RF historical data from seven (7) active and twelve (12) discontinued RF stations spanning various periods over the years between 1903 to the present within the Kama'ole ASA demonstrate the dryness of the region. Along the Kama'ole ASA coastline from Kenolio Park to La Perouse Bay the mean annual RF is approximately between 11 to 14 inches while the maximum near the top of Haleakalā at the active HaleNet SKN 339.6 station is 41 inches. Therefore, the range of mean annual RF in the Kama'ole ASA is roughly between 11 to 41 inches while the mean annual RF of

the Wailea SWHU within the Kama'ole ASA ranges between 11 to a max of 36 inches at the active Polipoli Spring SKN 267.2 station.[5]

Additionally, National Oceanic and Atmospheric Administration (NOAA) has a precipitation gauge on Mākena Golf Course in the project area measuring daily RF data since May 1, 1982 as shown in **Exhibit 4**. This gives a more direct localized sense of what the RF is within the MMP. Like the surrounding region, MMP is a very dry area with annual RF ranging from 5 to 30 inches over the 32-year period since 1982, and the average annual RF is 14 inches.

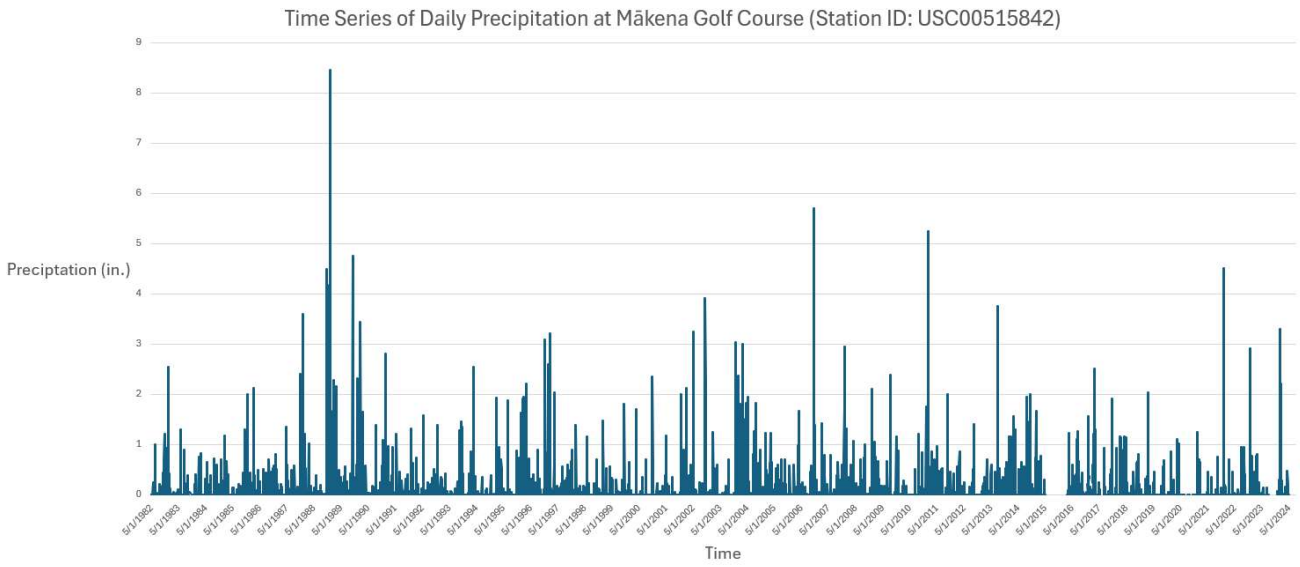

Exhibit 4. Time Series of Daily Precipitation at Mākena Mauka Golf Course

[5] For comparative purposes between older vs. newer methods and additional data, it should be noted that the older annual mean rainfall rate isohyets from the 1986 Rainfall Atlas of Hawai'i, Giambelluca [47] mean annual rainfall was under 16 inches along the Wailea coastline to under 49 inches near summit of Haleakalā.

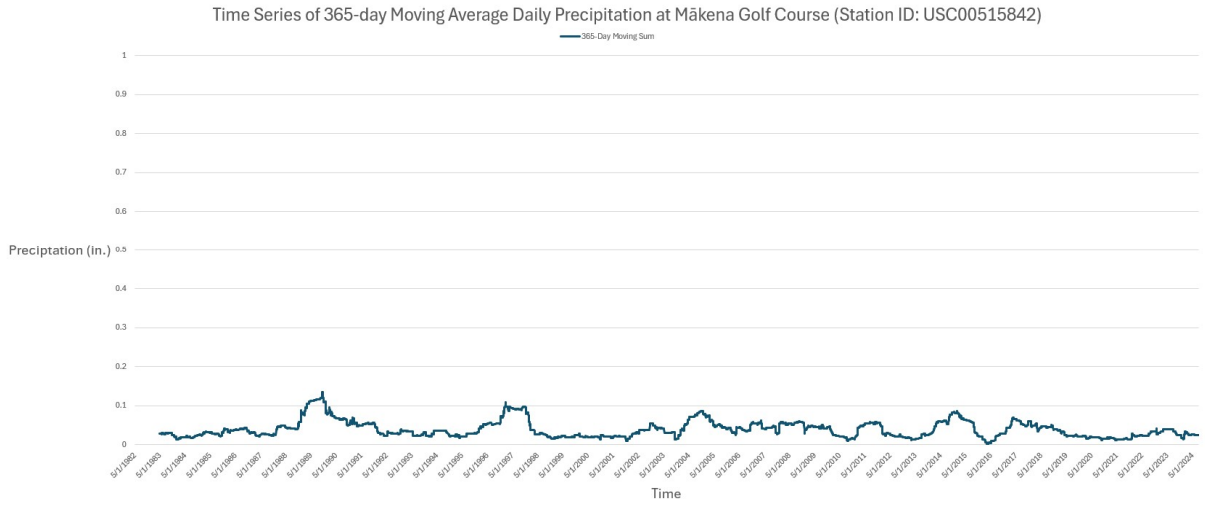

Exhibit 5. Time Series of 365-Day Moving Average Daily Precipitation at Mākena Golf Course

The complete time-series of the daily precipitation highlights large storm events very well and the time series of the 365-day moving average (**Exhibit 5**) visually depicts the daily dryness much more accurately, showing less than 0.2 inches/day. There is usually little to no rain in the MMP area on a daily basis.

It is important to note there are also recent uncertainty analysis based on observed declines in RF from 1920-2012 based on analysis by Frazier and Giambelluca [13]. This will be addressed in the SY Section 3.3.2 of this report.

4.2.2. Evapotranspiration

ET is the combination of evaporation off a water surface exposed to the atmosphere and transpiration, which is the process where vegetation takes up soil-moisture water through its root system and releases additional water vapor into the atmosphere. Again, the Hawai'i Climate Data Portal [14] (URL https://www.hawaii.edu/climate-data-portal/evapotranspiration-atlas/) website provides the best maps for estimates of various actual mean ET and mean annual PET ranges near

Mākena Mauka (see **Appendix C**). **Table 2** summarizes the ET ranges for the various hydrologic units and the project area.

Actual annual mean ET ranges from 3 to 67 inches along the same coastal segment of the Kama‘ole ASA as described previously in the Rainfall Section 3.2.1 to 13 to 67 inches near the active rain gage station at the HaleNet SKN 339.6 station near the Red Hill summit of Haleakalā. Therefore, the range of mean annual ET in the Kama‘ole ASA is roughly between 3 to 67 inches while the mean annual ET of the Wailea SWHU within the Kama‘ole ASA ranges between 3 to a max of 45 inches at the active Polipoli Spring SKN 267.2 station. However, the 67-inch estimate is an anomaly near the intersection of E Lipoa Street and Liloa Drive approximately 2.7 miles north of the MMP area. In fact, there are two large swimming pools just makai and mauka of the intersection.[6] The next highest ET nodal estimate is approximately 49 inches with the remaining estimates all lower than the 49-inch estimate in the Kama‘ole ASA. Therefore, it is reasonable to say the more accurate range of actual annual mean ET is between 3 to 49 inches within the Kama‘ole ASA. These estimates are relatively low due to the dryness of the area where there is normally little water to evaporate or transpire, which the 67-inch anomaly clearly demonstrates.

Evaporation from a pan evaporation station where water is always present combined with land cover and vegetative correlation coefficients that multiply additional transpiration effects based on type of vegetation and soil characteristics can help to estimate the *PET* if water were always available through additional RF or irrigation. The Penman-Monteith PET model gives the highest maximum PET if water was always present. Based on the online tool, the mean annual PET range for the Kama'ole ASA is roughly 35 to 285 along the same coastal segment, as described previously in the RF Section 3.2.1, to 177 inches near the active rain gage station at the HaleNet SKN 339.6 station near the Red Hill summit of Haleakalā. Therefore, the range of mean annual PET in the Kama‘ole ASA is roughly between 35 to 285 inches while the

[6] The two pools are located at the Haggai International Institute and the Kihei Aquatic Center that explain the high ET rate.

mean annual PET of the Wailea SWHU within the Kama‘ole ASA ranges between 35 to 227 near the coast to 76 inches at the active Polipoli Spring SKN 267.2 station in the upper elevations of the area.

It should also be noted that based on older annual adjusted mean pan evaporation rate isopleths from the 1985 Ekern report [15] potential ET was estimated to range from 90 to 70 inches along the Kama‘ole ASA coastline from Kihei to the Mākena Mauka areas, respectively.

Generally, PET is 3 to 10 times the available RF in areas within the project area, which is why it is necessary to augment RF to meet annual irrigation needs.

4.2.3. Climate Change

Climate change is occurring in the Hawaiian Islands. Shifting and declining patterns in RF [13] and streamflows [16] are proof of this, which can then affect available ground and surface water in the future. Ground water availability has the advantage of having large storage capabilities to buffer these changes compared to streams and surface water availability. This is why dams for surface water reservoirs can and have been used in the past to function as buffers to capture and store large RF event runoff that can be used during drier times of the year.

Studies on future climate scenarios have been and continues to be developed. The USGS Oki study on declining trends of streamflow [16] and more recently by Kāne Mair [17] show that climate change may have significant impacts on water availability in Hawai’i.

4.3. Ground Water Availability and Impacts

4.3.1. Occurrence of Ground Water in the Kama‘ole ASA

The nature and occurrence of ground water is well established in Hawai’i. Much of the regional geology and hydrology of the Wailea region has its origins from Stearns [9] [10] and later more detailed studies by Rosenau [18] and Dale [19]. The 2019 WRPP [4]

is a good summary of the various seminal studies that support this conceptual model of Hawaiian aquifers. The traditional conceptual diagram showing the basal, dike complex, perched, and caprock aquifer zones are shown in **Exhibit 6.**

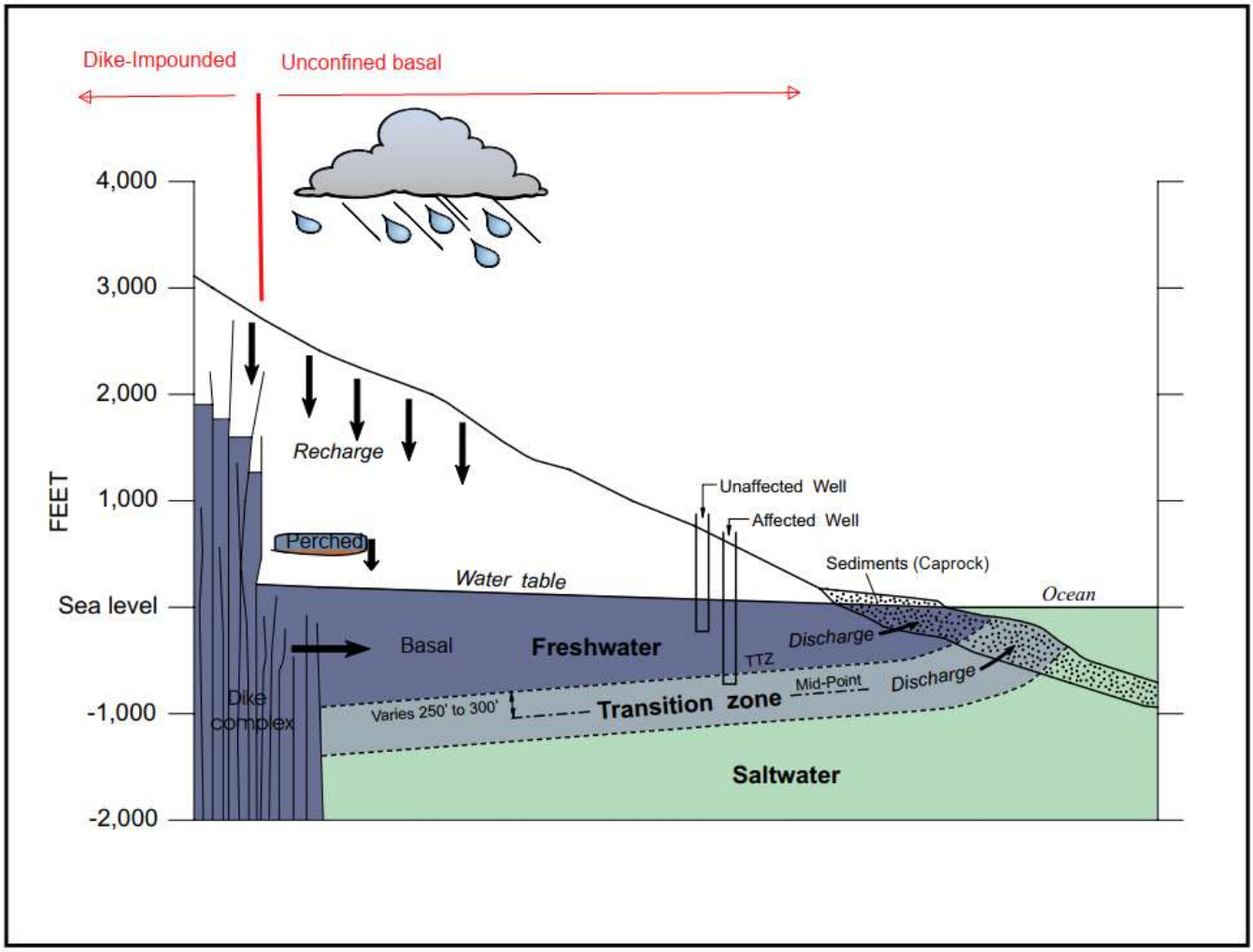

Exhibit 6. Ground Water Occurrence in Kamaʻole ASA
(modified from CWRM https://files.hawaii.gov/dlnr/cwrm/maps/hydrodisplay.pdf)

Recent deep monitor wells have found deep-confined freshwater underlying both the basal and saltwater aquifer zones on the Big Island in both the Hilo and Kona areas. However, there are no deep monitor wells on Maui or the Kamaʻole ASA that have encountered such a zone and it is not currently an issue. The majority of ground water occurrence within the Kamaʻole ASA is basal with its most inland boundary

terminating near the high-level dike impounded complex in the Haleakalā rift zones as shown in **Exhibit 7** [20].

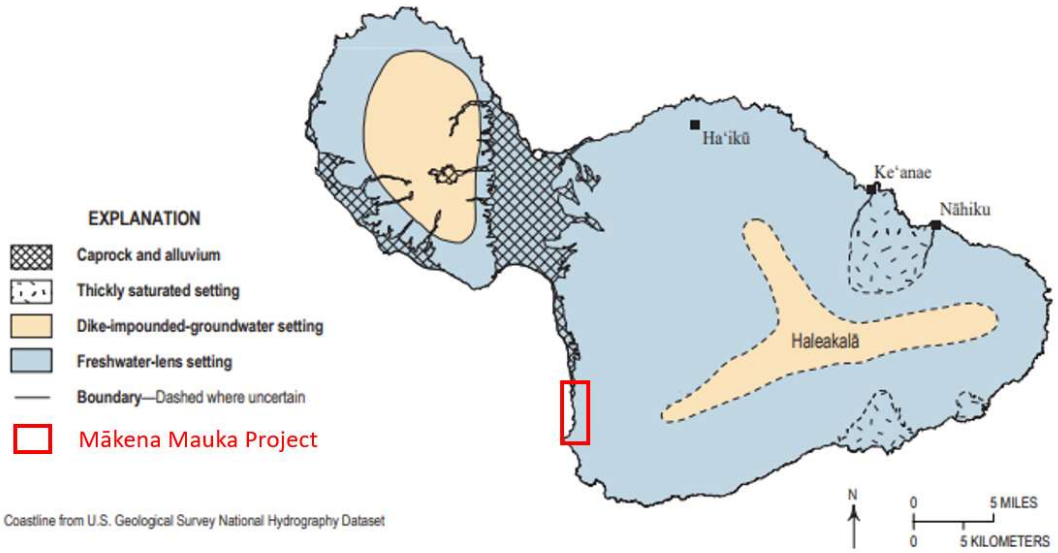

Figure 41. Map of the principal groundwater settings on Maui, Hawai'i. Modified from Izuka and others (2018).

Exhibit 7. Geologic based groundwater occurrence on Maui (modified Fig. 41 Izuka & Rotzoll [21])

Basal aquifers in Hawai'i typically have tremendous storage compared to high-level dike complex and perched aquifers. As such, they can sustain large pumping with little reduction in water levels. However, basal aquifers are more susceptible to saltwater intrusion from the underlying saltwater upon which the less dense freshwater floats. This saltwater intrusion into wells and the basal aquifer are not a concern in high-level dike complex and perched aquifers unless geothermal activity is present. There is no such evidence of geothermal activity in the Kama'ole ASAs. Based on CWRM well data information, the basal lens in the Kama'ole ASA ranges up to approximately +10 ft above mean sea level (msl), but most recorded water levels are under +5 ft msl (see **Appendix D**). Water-level data in the project area range between 1-3 ft above sea level, so the ground water is at a depth well below any typical excavation required for construction of a residential project. Any new well drilling near or within the project area must go down to that elevation to encounter the basal aquifer. The reasons for the

relatively thin basal lens are that 1) most wells are drilled near the coastline where the lens is thinnest and 2) the general lack of significant caprock to impede ground water discharge to the ocean to increase ground water levels and storage (see **Exhibit 7** and **Appendix E**).

The Kama'ole ASA lies within the larger Central Aquifer Sector Area as shown in **Exhibit 8** below.

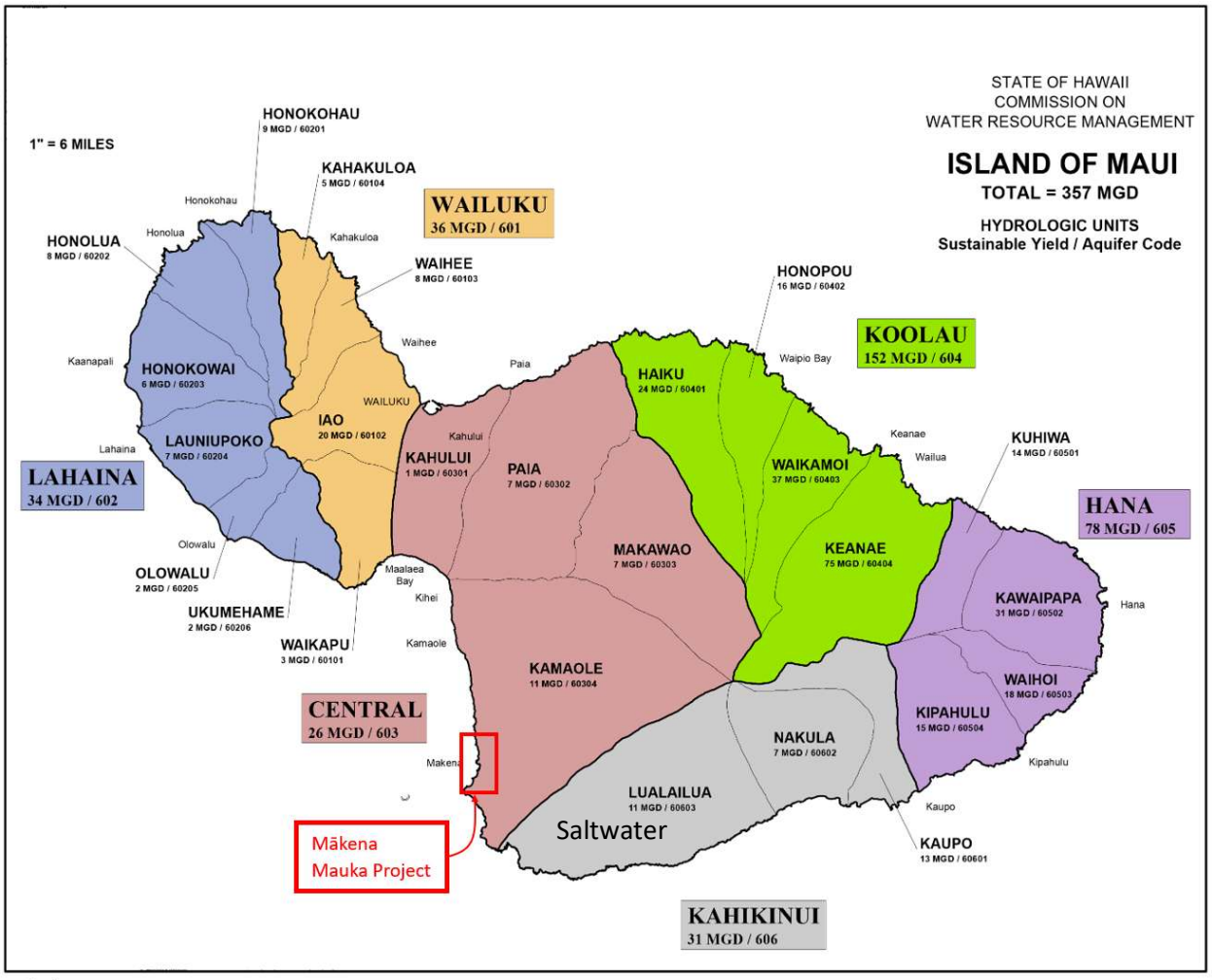

Exhibit 8. Ground Water Hydrologic Units for Maui (WRPP [4]) and Mākena Mauka Location

Covering an area of 91.4 mi^2 (including 2.2 mi^2 of caprock near the coast) the Kamaʻole ASA extends from the mauka to Red Hill at the top of Haleakalā. The caprock is very thin near the coast and only exists in the northern coast of the ASA (See **Exhibit 7** and **Appendix E**) and is composed mostly of Hana volcanics [11]. It is within these boundaries that localized water budgets estimating recharge that contribute to SYs are computed in the management scheme of setting water availability for ASAs statewide [8], [22], [4].

4.3.2. Sustainable Yield

SY under the State Water Code, HRS 174C-3 is defined as:

> *"Sustainable yield" means the maximum rate at which water may be withdrawn from a water source without impairing the utility or quality of the water source as determined by the commission.*

SY is the measure against which available water is managed and determined by the CWRM, especially within GWMAs such as the ʻĪao ASA.

The CWRM currently determines ground water SYs in the 2019 WRPP [4] of the Hawai'i Water Plan (HWP) using the Robust Analytical Model (RAM) model(s).[7] The CWRM normally selects the minimum from a range of SY estimates to address the precautionary principle unless there are groundwater numerical models, data from deep monitor wells and sufficient historical pumpage and chloride records to support a higher SY than the minimum estimated by recharge ranges and RAM. Numerical models have the advantage of estimating future temporal, spatial, and quality changes if sufficient observed data exists and require calibration analysis with assumed geologic boundaries to match observed steady states (if they exist) of water levels, pumpage, and chlorides

[7]The CWRM uses the analytical Robust Analytical Model (RAM) [52] or RAM2 [51] approved by CWRM [4]. More detail on this approach is discussed in the 2019 WRPP [4] and why it is useful for planning and regulatory purposes and forms the foundation for most SY estimates in the state when compared to the more complex numerical models.

to make future predictions reasonable. If calibrated and validated, numerical models can help estimate impacts to ground water resources for various scenarios of pumpage or recharge. A numerical model [23] has been developed specifically to assess ʻĪao, Waiheʻe, and Waikapū ASAs but not for the Kamaʻole ASA. The current best conservative estimate of SY for the Kamaʻole ASA is 11 Mgd from a range of 11-16 Mgd [4], which is 44% of the minimum recharge range estimated between 24-37 Mgd [4] for the area. The SY is a daily use figure averaged annually and the CWRM uses a 12-month moving average of pumpage to assess the impact on the aquifer resource.

Since drinking water is supplied to the Mākena area from the MDWS CMS, then the primary sources of the ʻĪao (60102) and Waiheʻe (60103) ASAs for this distribution system are also important to consider. Also, according to the MDWS 2023 Maui Island WUDP [1], the Haiku ASA (60401) will play a key role planning for future growth and relieving current reliance on the ʻĪao and Waiheʻe ASAs for drinking water.

The current best estimate of SY for the ʻĪao ASA is 20 Mgd from a range of 10-28 Mgd [4], which is based on a significant amount of data and analysis.[8] The current best estimate of SY for the Waiheʻe ASA is 8 Mgd from a range of 6-15 Mgd [4], based on similar related analysis with the ʻĪao ASA. Lastly, the current best conservative estimate for the Haiku ASA is 24 Mgd based on a range of 24-27 Mgd.

Normally, the minimum of the estimated SY range is selected as the SY to be conservative as discussed in more detail in the 2019 WRPP [4]. The latest published recharge studies by Engott [24] based on the online RF and ET data described above provided the basis for updated recharges for the Kamaʻole, ʻĪao, Waiheʻe, Haiku, and the Waikapū ASAs. More details of these latest assumptions for the best estimate of minimum recharges for the Kamaʻole, ʻĪao, Waiheʻe , Haiku, and Waikapū ASAs can be found in the 2019 WRPP [4]. However, the more recent recharge estimates use a more

[8] In accordance with the 2019 WRPP , the alternative minimum SY for ʻĪao and Waiheʻe were based on complete historical data record from production wells, monitor wells, three (3) deep monitor wells, the RAM2 model, and pre-2019 USGS/MDWS numerical models [23] [50]. Post-2019 USGS numerical and recharge models also cover various pumpage scenarios that indicate the reasonableness of the current ʻĪao and Waiheʻe SYs [21] [26] [54].

detailed soil-moisture storage model that is not as conservative as the older annual recharge estimates made in the original 1990 WRPP [8] that overestimate the effects of ET. The current 2019 WRPP still uses older annual average recharge estimates for most SY estimates to address the precautionary principal policy of the CWRM including the Kama‘ole ASA. This original older method significantly overestimates ET and is typically still more conservative than the newer recharge methods that observed and predicted reduced RF in the future. **Table 3** provides a summary of this discussion in the pumpage Section 4.3.3 of this report.

Despite the breadth of data, research, and public involvement for the CWRM approval process that back up the current and reasonable minimum SYs within the 2019 WRPP there are two (2) significant uncertainties to SYs in all ASAs statewide:

- First, in January 2022, the USGS presented unpublished analyses to the CWRM that considers future climate change scenarios where recharge is predicted to be significantly reduced; hence, possibly reducing estimated SYs [17]. However, it is not clear if this reduction is related to the more recent and higher estimates of the recharge range rather than the minimum recharge used based on older but more conservative recharge calculations and estimates.
- Second, the 2019 WRPP acknowledges the emerging issue of ground water dependent ecosystems (GDE) that have not been explicitly addressed in establishing SYs. Although targeted as a test case in the Keauhou ASA (80901) [25] to assess how to address this GDE issue, current policy of the CWRM appears to have moved this issue into more recent regulatory approvals statewide for all well construction permits.

4.3.3. Well Sources, Pumpage, Water Levels, and Salinity

According to the CWRM well index database as of January 2025, there are 149 known well sources with a total installed pumping capacity of 21.563 Mgd in the Kama‘ole ASA that are not abandoned or lost (see **Exhibit 1** and **Appendix D**). All wells not sealed are required to report total pumpage, water levels, and salinity to the CWRM monthly as defined under HAR 13-168-7. Most of the ground water data comes from well sources within 3 miles of the coast in the Kama‘ole ASA.

The historical pumpage for the Kamaʻole ASA is summarized in **Exhibit 9** and **Appendix F**. Similar pumpages for ʻĪao (**Exhibit 10/Appendix G**), Waiheʻe (**Exhibit 11/Appendix H**), and Haiku (**Exhibit 12/Appendix I**) ASAs are included in this section as these aquifers would provide potable water for MMP via the MDWS CMS as specified in the MDWS 2023 Maui Island WUDP.

Although the MDWS CMS does not have any sources in the Waikapū ASA, pumpage information is also included as it is also a potential future alternative source for potable water (**Exhibit 13/Appendix O**). Additionally, scenario 3 of the numerical modelling efforts [26] by MDWS and USGS show that Waikapū ASA could be pumped as high as 4.117 Mgd, while the ʻĪao ASA is pumped to ground water use permit allocated amounts of 19.064 Mgd and Waiheʻe ASA is pumped to 5.039 Mgd with chlorides remaining below the EPA secondary guidelines of 250 mg/l in all modelled production wells with the exception of 1 source (see **Exhibit 14).**

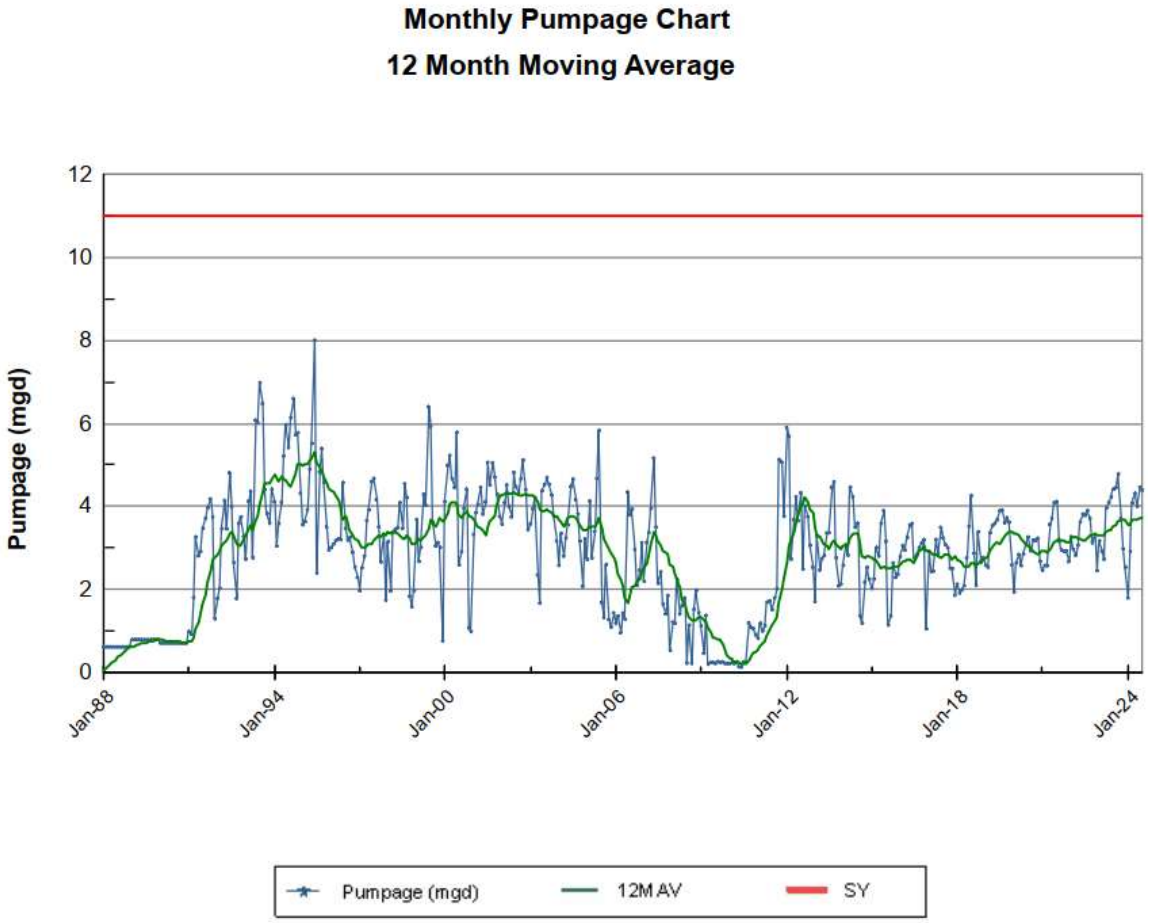

Exhibit 9. CWRM Historical Kama‘ole ASA Pumpage as of January 2025 (See **Appendix F**)

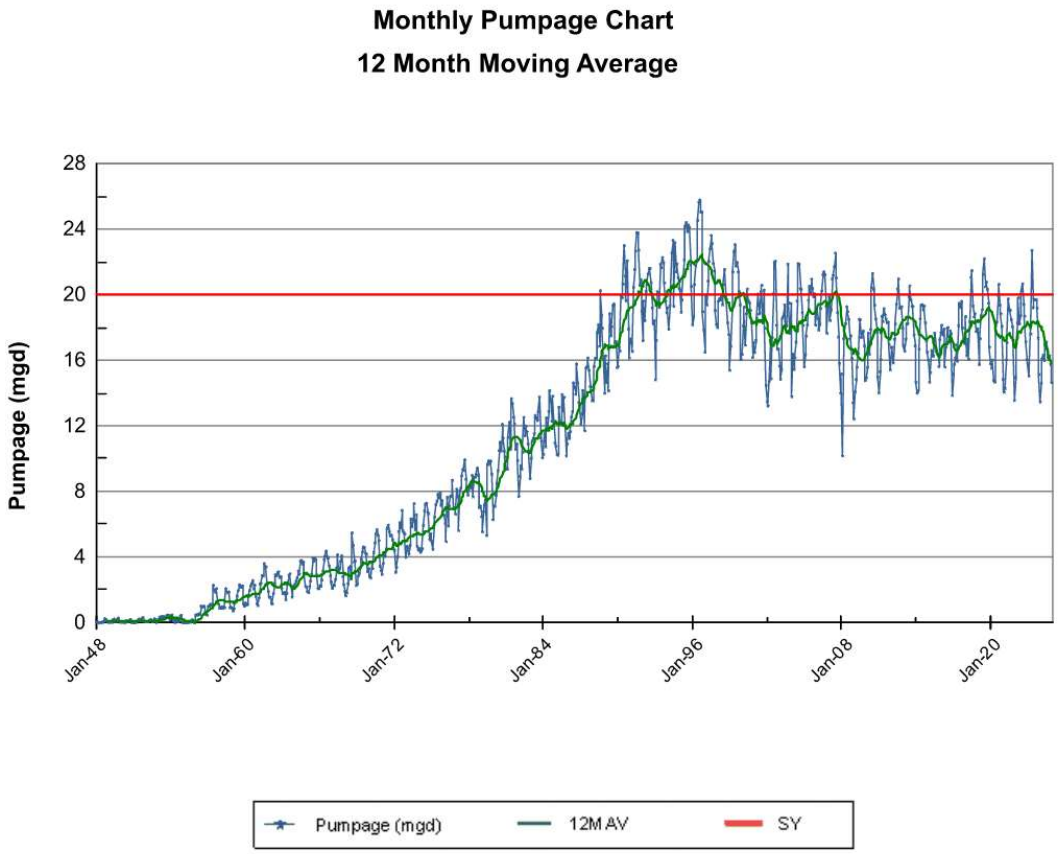

Exhibit 10. CWRM Historical ʻĪao ASA Pumpage as of January 2025 (See **Appendix G**)

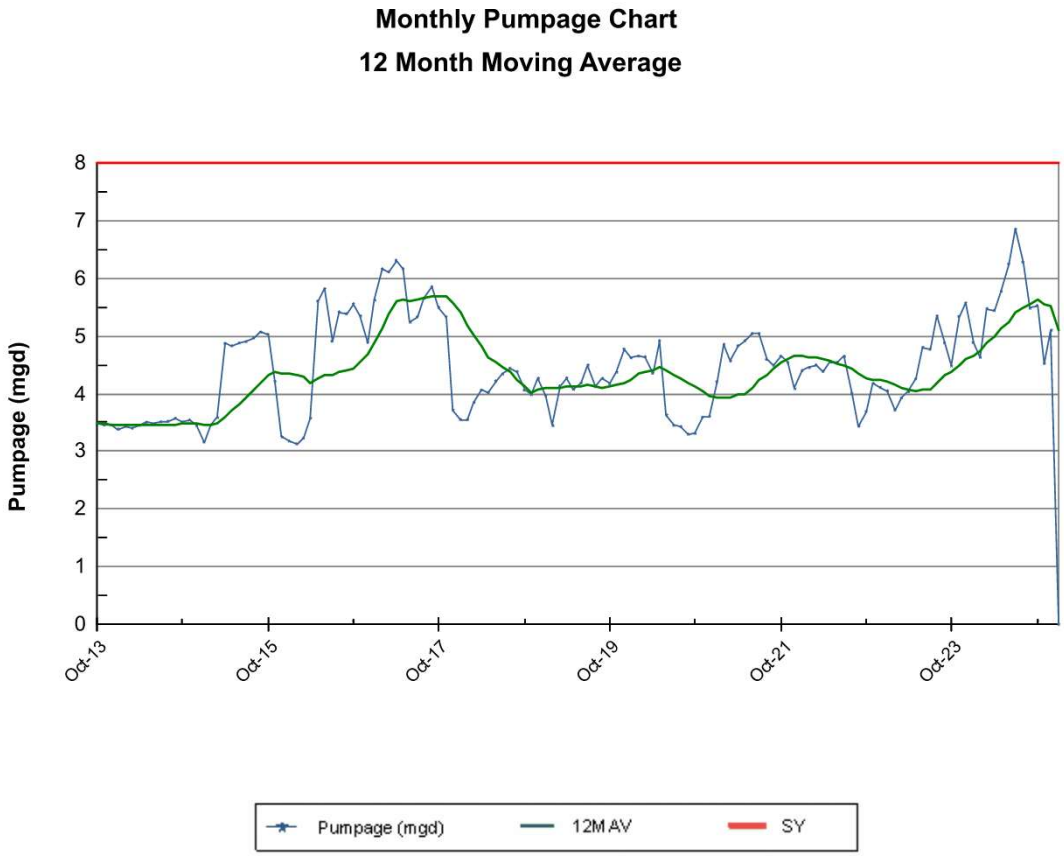

Exhibit 11. CWRM Historical Waiheʻe ASA Pumpage as of January 2025 (See **Appendix H**)

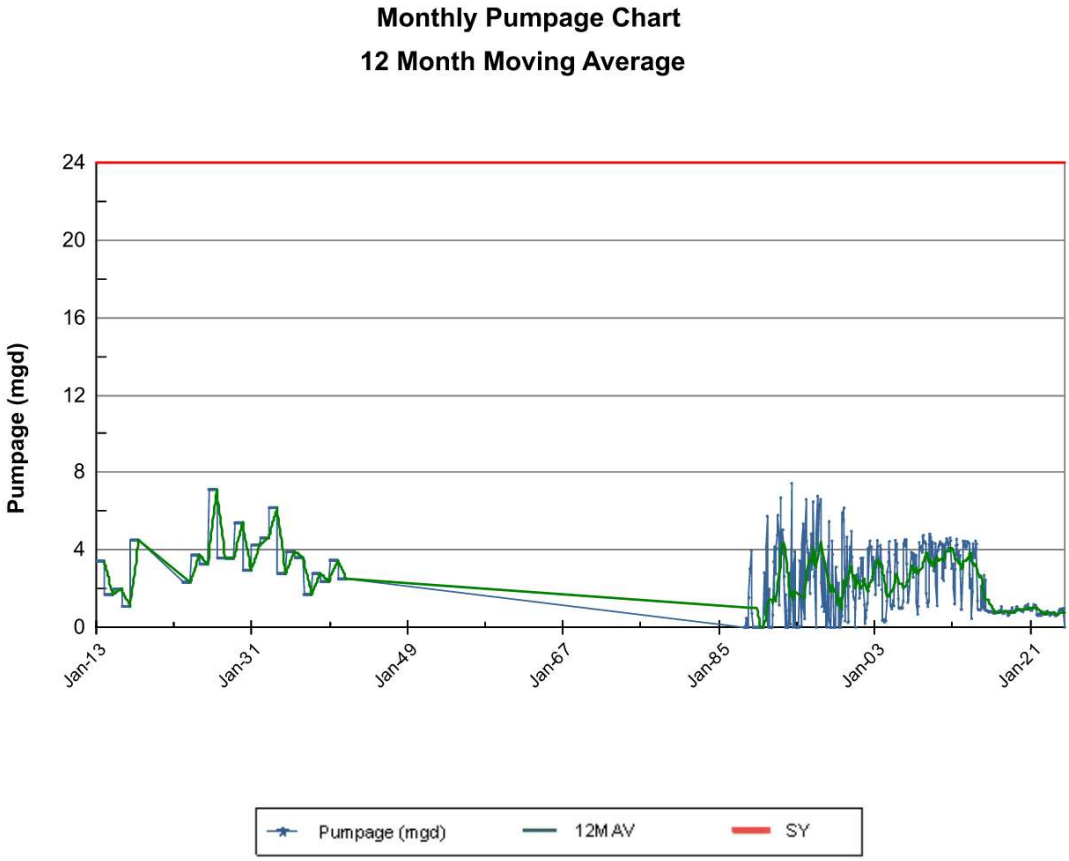

Exhibit 12. CWRM Historical Haiku ASA Pumpage as of January 2025 (See **Appendix I**)

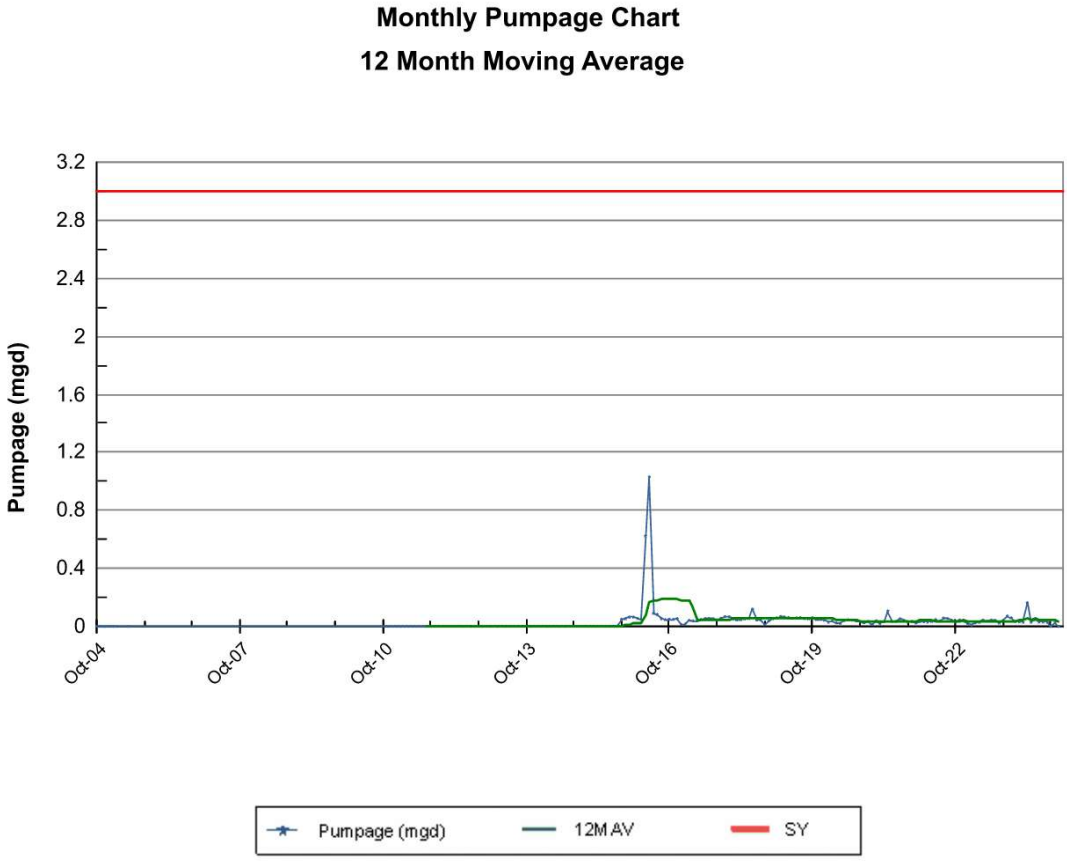

Exhibit 13. CWRM Historical Waikapū ASA Pumpage as of January 2025 (See **Appendix O**)

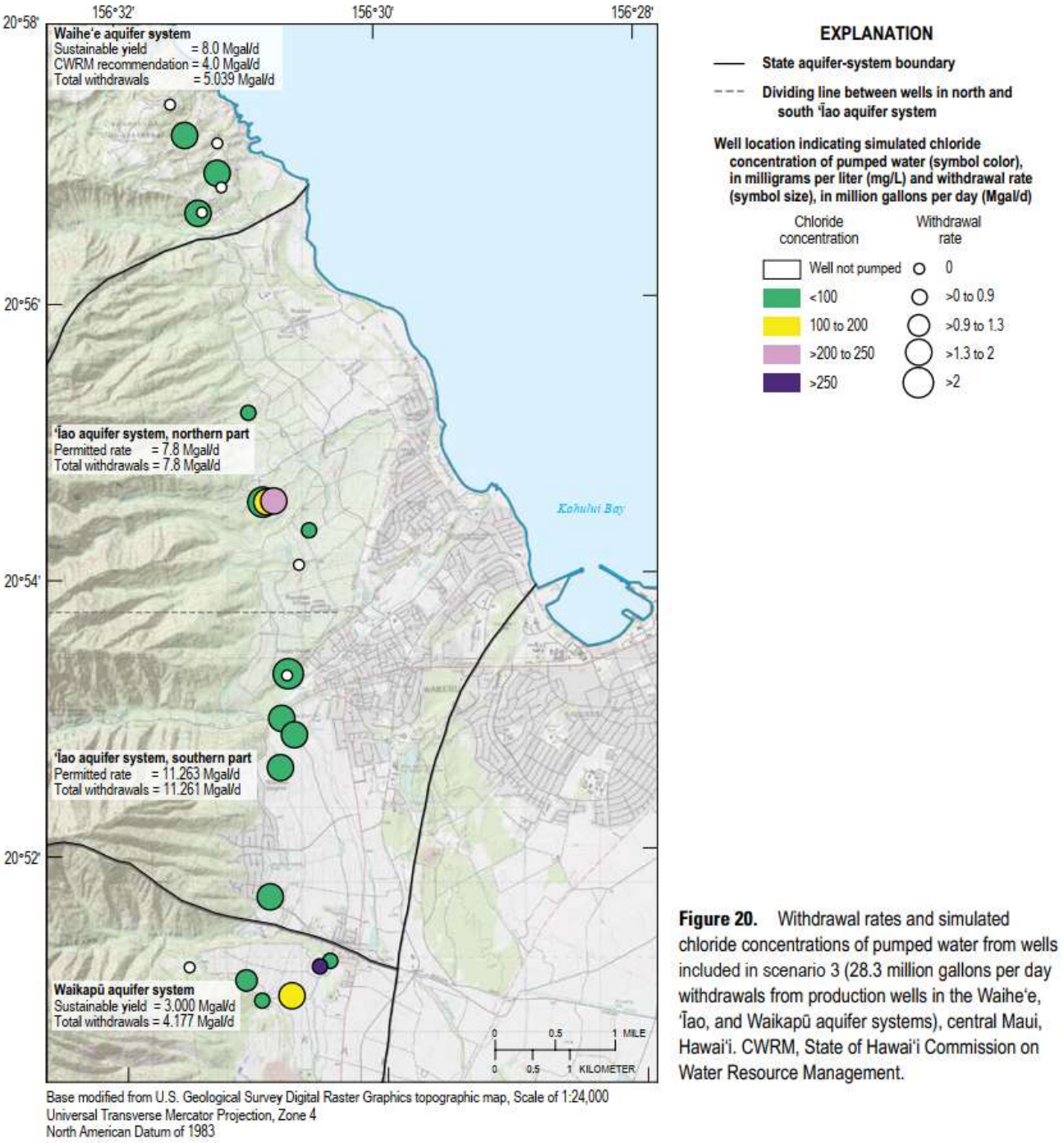

Figure 20. Withdrawal rates and simulated chloride concentrations of pumped water from wells included in scenario 3 (28.3 million gallons per day withdrawals from production wells in the Waihe'e, 'Īao, and Waikapū aquifer systems), central Maui, Hawai'i. CWRM, State of Hawai'i Commission on Water Resource Management.

Exhibit 14. Fig 20. from MDWS/USGS Numerical Model Scenario 3 Chloride Results [26]

The CWRM tracks total pumpage against SY by using the 12-MAV to protect the ASA based on current pumpage. The 12-MAV is a rolling 12-month period such that at any particular month the previous 11 months of pumpage are made part of the average to cover complete annual seasonal variations. **Table 3** is a summary of the current pumpage vs. SY in Kamaʻole, ʻĪao, Waiheʻe, Haiku, and Waikapū ASAs.

Table 3. SY vs. Pumpage

	Mgd					
ASA[1]	Recharge Range	SY[2]	12-MAV[3]	Unused SY	% SY Used	As of WUR Date
Kama'ole	24-37	11	3.805	7.195	35%	12/31/2024
ʻĪao [4]	15-42	20	13.157	6.843	66%	12/31/2024
Waiheʻe [5]	12-30	8	5.518	2.482	69%	12/31/2024
Haiku	54-61	24	0.837	23.277	3%	12/31/2024
Waikapū	6-18	3	0.037	2.968	1%	12/31/2024
Total	111-188	66	22.517	43.483	34%	

Notes:

[1] ASA = Aquifer System Area, which is a CWRM ground water hydrologic unit as defined in the 2019 WRPP

[2] SY = Sustainable Yield as defined by HRS 174C-3, 31(i)(2), & 2019 WRPP

[3] 12-MAV = 12-month moving average for non-caprock sources which do not count against SY, including high-level dike sources

[4] ʻĪao is a designated ground water management area where the SY is an alternative minimum due to data record, multiple deep monitor wells, RAM2, and a numerical ground water model developed and used by the USGS and MDWS.

[5] Waiheʻe has an alternative minimum SY due to data record, a deep monitor well, RAM2, and a numerical ground water model developed and used by the USGS and MDWS.

The current 12- MAV pumpage from the Kamaʻole ASA as of January 2025 is 3.805 Mgd (see **Appendix F**), which is 7.195 Mgd lower than and using only 35% of the Kamaʻole ASA's 11 Mgd SY (or 10-15% of the recharge range). Thus, based on actual use it would appear there is ample ground water available for reasonable and beneficial uses within the Kama'ole ASA at this time. It is important to note that the CWRM approved a reservation of 2.547 Mgd to DHHL from the Kama'ole ASA on September 18, 2018 for potable needs and this should be considered as future pumpage against the SY. The DHHL reservation raises the authorized planned use in the Kama'ole ASA to at least 58% of the 11 Mgd SY, which indicates that the utility of the Kamaʻole ASA ground water

is still not threatened and could provide reasonable and beneficial irrigation water on a sustainable basis.

Water levels in the Kama‘ole ASA range up to approximately +10 ft above mean sea level (msl) but most recorded water levels are under +5 ft msl (see **Appendix D**). Near and within the project area water levels are expected to range between 1-3 ft above mean sea level. Unfortunately, monthly water-level reporting is not as robust as monthly pumpage reporting and there is little reporting from most wells in the Kama‘ole ASA including observation monitor wells of: 1) USGS Observation Wells Kihei Fire Well Nos. 6-4427-006 to 008; 2) Kalama Beach Well Nos. 6-4327-008 to 010; and the 3) County Observation Kihei Injection Well No. 6-4426-001 (personal communication with CWRM staff).

CWRM staff directly collect water-level data from the more inland Waiohuli Observation Well No. 6-4422-001 (see **Exhibit 15**). The USGS drilled the well and recorded water levels between +6 to +5 ft msl from 2001 to 2003 [27]. This indicates a decreasing trend of 0.07 ft/yr over the past 23 years.

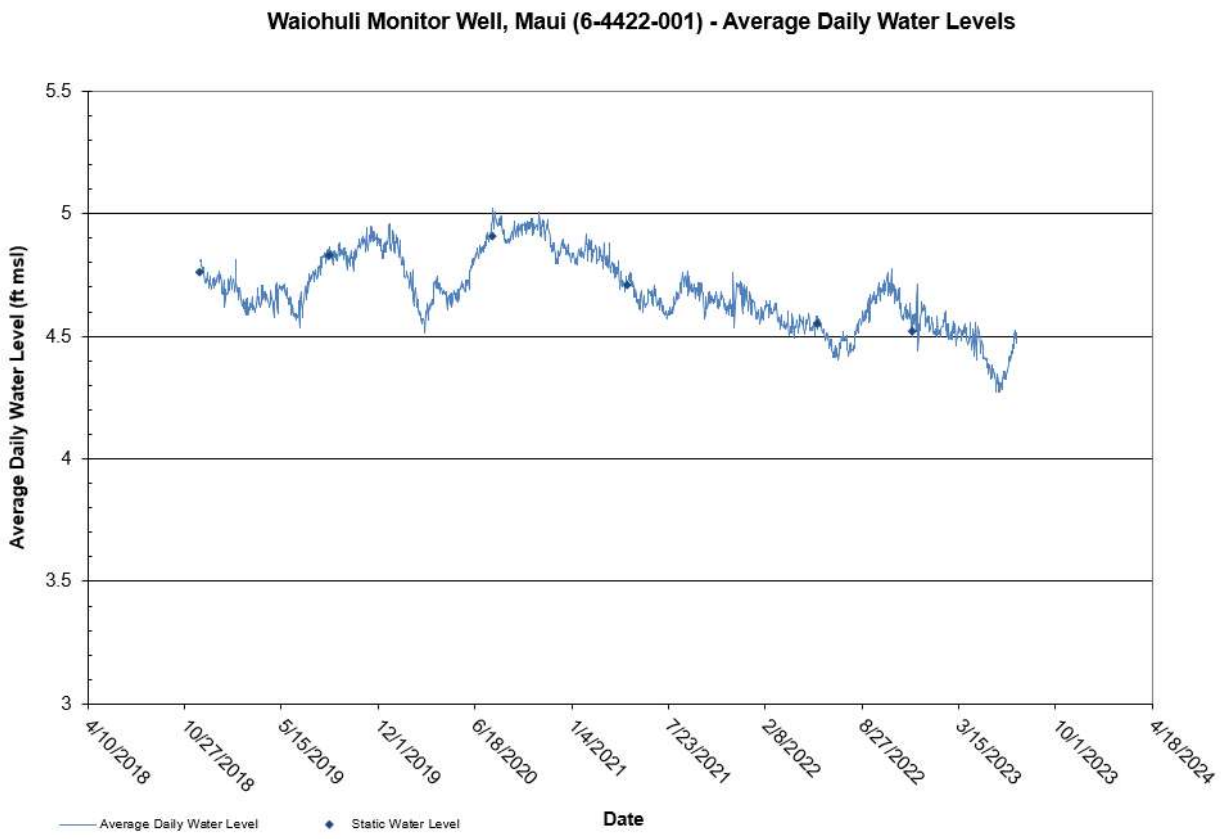

Exhibit 15. CWRM Waiohuli Monitor Well Water-Level Data through July 2023

The trend may be due to larger hydrologic changes from island wide climate change, diminished importation of surface water from East Maui into the Upcountry Maui Irrigation System and the adjacent Makawao, Pāʻia, and Kahului ASAs, the closure of HC&S Sugar operations in 2016, or a cumulative impact from all these events.

CWRM has collected data (**Exhibit 16**) for Maui Meadows Observation Well 6-4225-001, which is a more proximal observation well just under a mile north of the MMP (see **Exhibits 1 & 2**). Water levels are lower at this site as it is nearer to the coast, and it has a similar trend to Waiohuli (**Exhibit 15**) since 2020 except for a significant rise during the summer.

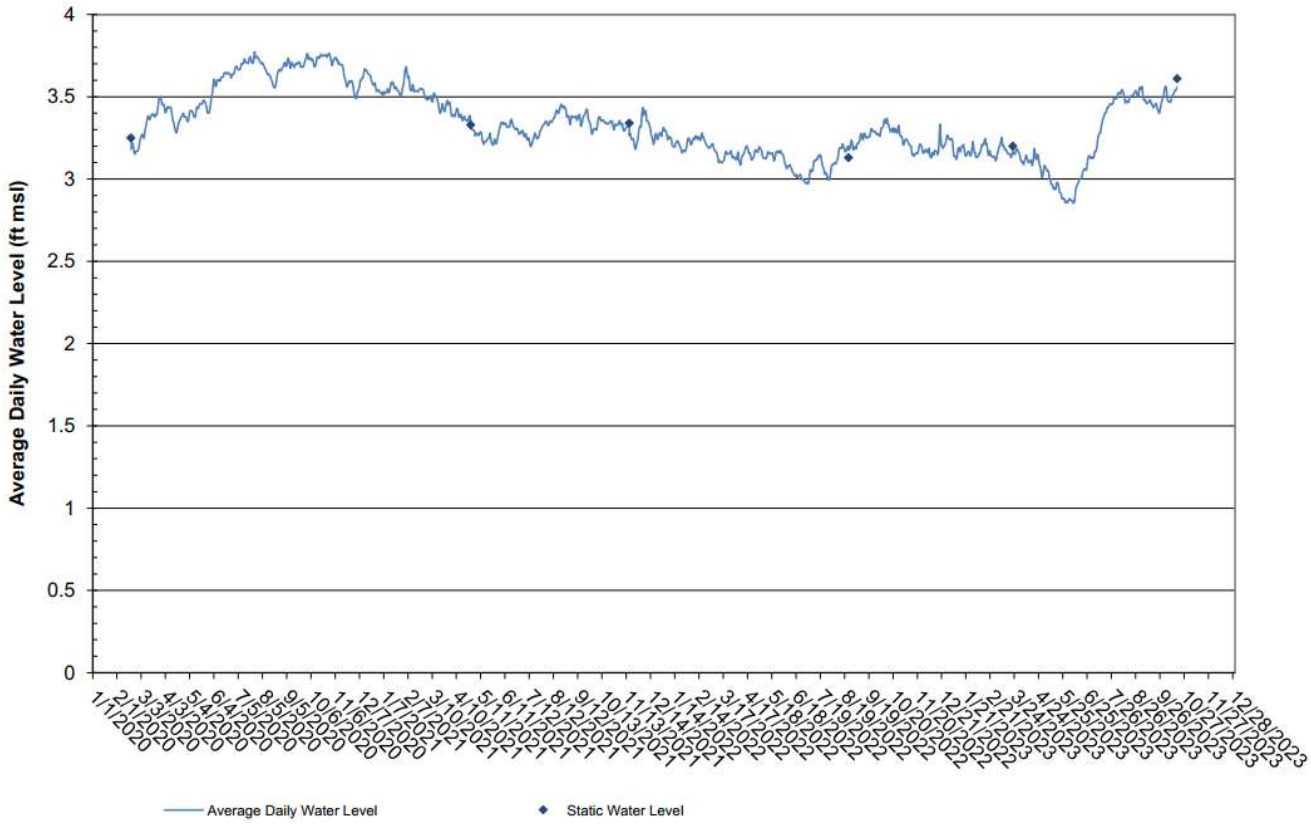

Exhibit 16. CWRM Maui Meadows Monitor Well Water-Level Data January 2020 through July 2023

It is highly unlikely that pumping from the existing and new well sources near the coast in the MMP vicinity would have any impact towards the inland area of the Kama‘ole ASA. Instead, once a commensurate amount of coastal discharge is captured by irrigation pumpage near the coast, water-level impacts will cease to extend inland within the Kama‘ole ASA from the MMP irrigation well sources. Given the Kama‘ole ASA shoreline is 16.6 miles long, uniform coastal discharge estimates would range between 1.446 to 2.229 Mgd/mile based on recharge estimates (see **Table 3**). At this rate, the natural discharge along the MMP coastline (5 miles) would be approximately 7 to 11 Mgd. However, assuming uniform coastal discharge, the SY of the Kama‘ole ASA would suggest that ground water discharge along the MMP coastline should be limited to a total of 1.79 Mgd, or 30% to 46% of the recharge range of the natural ground water

coastal discharge to the area.[9] As of January 2025, the reported actual 12-MAV pumpage from wells within and mauka of the MMP coastline is 0.844 Mgd (see **Appendix R**), which suggests current localized pumpage at the MMP is currently within sustainable localized coastal discharge limits. Even so, spreading out the distribution of localized pumpage stresses north and south of the MMP to minimize further impacts on water levels, chloride concentration, and coastal discharge would be good management practice.

Some of the irrigation pumpage will also have mitigated impacts due to return-irrigation recharge contributions back to the aquifer; however, efficient irrigation practices would limit return irrigation by avoiding overwatering. Soil-moisture-sensor based irrigation is one example of efficient irrigation that while promoting efficient use of water would reduce return-irrigation recharge benefits to the aquifer.

Much of the ground water chloride and water-level data in the Kama‘ole ASA comes from well sources within 3 miles of the coast where most have chloride concentrations that exceed the U.S. Environmental Protection Agency (EPA) Secondary guideline of 250 mg/L (https://www.epa.gov/sdwa/secondary-drinking-water-standards-guidance-nuisance-chemicals). The initial chlorides encountered from wells within the MMP and outside the MMP owned by Wailea Golf Course averaged 536 Mg/L, showing these wells are naturally brackish and making the utility of the Kama‘ole ASA as an irrigation water supply near the coastline (see **Appendix D**).

Despite the brackish nature of wells in the vicinity of MMP, saltwater upconing and intrusion are still concerns to maintain the irrigation utility of ground water wells as the upper tolerance limit for most plants is generally 1,000 mg/L and well depths and pumpage rates will need to follow the CWRM’s 2004 Hawai’i Well Construction and Pump Installation Standards (HWCPIS [28]). The two major protection components of the CWRM 2004 HWCPIS are: 1) limits the depth of new wells to ¼ the depth of the

[9] The Kama‘ole ASA RAM D/I, or simply pumpage to recharge, ratio of 44% used to calculate SY lies within this range and shows that a minimum of 54% to 70% ground water discharge would always continue to ocean under the current 11 Mgd SY limit.

basal lens based on the original water-level encountered during the initial well construction and 2) well (step-drawdown) and aquifer (long-term) pump testing. The average of reported initial water-levels encountered by 20 wells within the vicinity of the MMP (see **Exhibits 2 & 3** and **Appendix D**) is approximately +2 ft above mean sea level (msl). Thus, new wells drilled should anticipate a drilling depth limit of approximately -18 ft msl to keep the bottom of the well bore sufficiently above the transition zone to protect against upconing. The pump tests to assess water level and chloride changes are predicated on the size of the pump to be installed. However, well pump capacities below 50 gallons per minute (gpm) do not require testing as the impacts from these capacities are generally less than natural tidal and barometric variation and impacts to ground water-levels and changes to chlorides at this pumping rate are rarely observed.

4.3.4. Ground Water Contamination Concerns

The State of Hawai'i (SOH) Department of Health Groundwater Protection Program Safe Drinking Water Branch (DOH SDWB) provides groundwater contamination maps through their online viewer located at https://health.hawaii.gov/sdwb/groundwater-contamination-viewer/. The intent of these maps is to identify only those wells with current detectable levels of groundwater contamination as shown in **Exhibit 17** for the island of Maui with the MMP area.

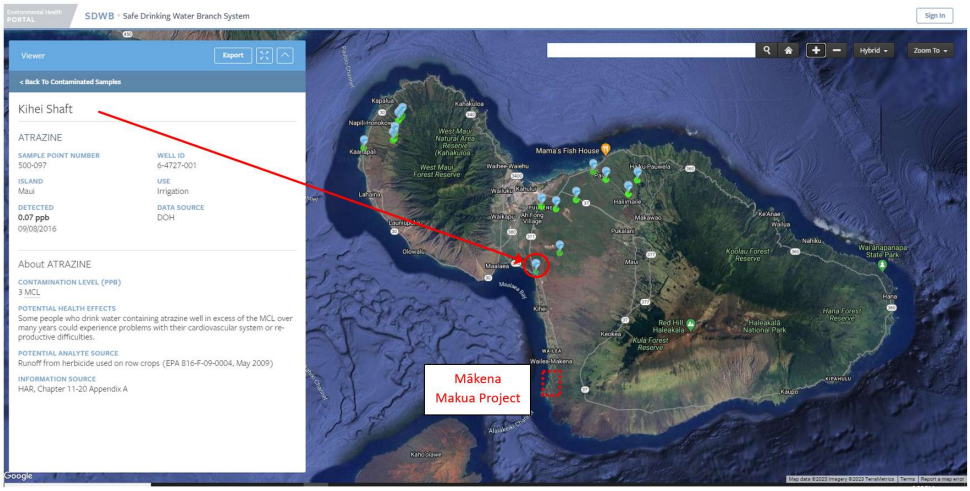

Exhibit 17. DOH Groundwater Contamination Map
(source: https://eha-cloud.doh.hawaii.gov/sdwb/#!/viewer)

There are no reported contaminants in the MMP area or the Kama‘ole ASA. The closest detect has been 9 miles north of the MMP at the Kihei Shaft (Well No 6-4727-001) owned by Alexander & Baldwin, Inc. for the herbicide atrazine. The 2016 0.07 ppb detection is under the 3-ppb maximum contaminant level (MCL), from this irrigation well.

However, there are concerns regarding elevated levels of nitrate and nitrite, ortho-phosphate, turbidity, and chlorophyll α based on a 2024 annual water quality monitoring report for the Client by AECOS, Inc. [29]. The AECOS report recognizes that outbreaks of excessive amounts of algae off West Maui have been attributed to elevated concentrations of both dissolved inorganic nitrogen (DIN) and inorganic phosphorus (DIP) in sewage effluent injected into groundwater and migrating to nearshore waters but that no such algal outbreaks have been recorded for nearshore waters off the MMP area.

The AECOS report states that the nutrients in groundwater near Mākena have two possible origins: (1) a remote source: present in groundwater that originates upslope of the resort and that can be measured in well water; and (2) a local source: seepage of MG&BC excess irrigation water into the groundwater [29]. There are no

cesspools in the immediate area around the MMP (see **Appendix J**) that would be a source concern of nutrient or microbiological ground water contamination. However, the two to three annual discharges of R-2 effluent into the unlined basin (See Section 3.6.1) may be a source of nutrient contamination.[10] MMP intends to be sewered to its own privately owned and maintained Mākena Wastewater Reclamation Facility and while there is no current estimate of wastewater demands; a preliminary engineering and drainage report (PEDR) will be prepared to assess the wastewater needs of the project .

Finally, it should be acknowledged that pumpage from current and future wells within and around the MMP should reduce the mass loading of nutrient contamination to the aquifer so long as good irrigation and fertilization practices are followed (See **Appendix K** for DOH guidelines).

4.4. Surface Water Availability and Impacts

4.4.1. Occurrence of Surface Water in the Wailea and Mo‘oloa SWHUs

The MMP lies within the Wailea SWHU (6110) and Mo‘oloa SWHU (6109) drainage area of the greater Kahikinui Region (see **Exhibit 18**).[11] It is one of thirty-five drainage areas in the region and covers an area of 35.76 mi^2. The Intermittent riverine of Keawakapu transect the MMP mauka to makai is within the Wailea SWHU (see **Exhibit 3**). This is not a significant source of surface water and will be left undiverted.

[10] R-2 effluent is recycled water that has been oxidized and disinfected to remove contaminants making the resuse water available for landscape irrigation such as landscape, golf course, parks and certain agricultural crops.
[11] The Wailea SWHU (6110) and Mo‘oloa SWHU (6109) as defined in 2019 WRPP [4] and is shown in Exhibit 1.

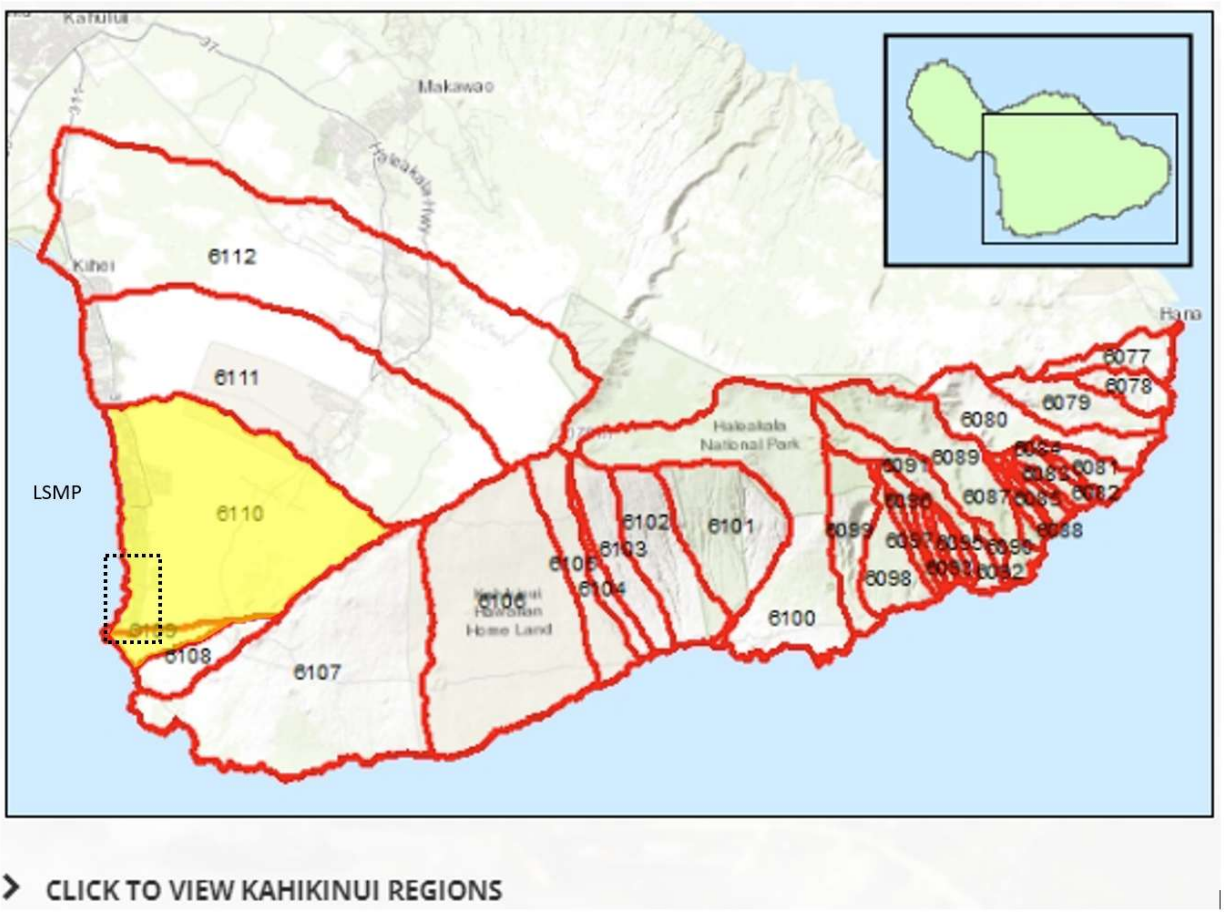

Exhibit 18. CWRM Wailea and Mo'oloa SWHU, Kahikinui Region
(Source : https://dlnr.hawaii.gov/cwrm/surfacewater/ifs/maui/)

4.4.2. Interim Instream Flow Standards

The CWRM has the duty to reasonably protect instream flows. This is done through interim and permanent instream flow standards (IIFS & IFS) that identify minimum flows that must pass through a specific point or reach of a stream.

There are no Instream Flow Standard Assessment Reports (IFSARs) available from the CWRM for any of the Kahikinui Region of the dry leeward side of Haleakalā including the Wailea Watershed/SWHU (6110) and Mo'oloa SWHU (6109). Based on communications with CWRM staff, there are no pending plans to do IFSARs or update

IIFSs since streams are historically intermittent in this dry area. Further, the USGS has no surface water monitoring stations in the region.

Like ground water, an uncertainty to consider related to climate change is that results from USGS Oki study [16] show that long-term stream baseflow trends have been declining since 1913 – 2002 statewide. This will impact surface water availability more than ground water as ground water has much greater storage capacity in aquifers. Although it shows a significant decreasing trend in streamflows statewide from the 1940's, the report itself also concludes further study is needed to see if this observation may be part of a long-term cycle that may return to a wetter period similar to the years between 1913 and 1940's. Since the MMP is already in a dry area with no perennial streams this is likely to have insignificant impacts on the area with respect to water availability and IIFS/IFS.

4.4.3. Diversions

According to CWRM, there are four surface water diversions with no declared water uses that were registered with CWRM within the Wailea and Mo'oloa SWHUs [30] [31]. These diversions identified by CWRM are approximately 8-11 miles mauka upcountry with locations shown in **Exhibit 19**. These divert surface water from Waihou (1116), Waikaalu (1117), an unmapped spring on Ulupalakua Ranch (1118), and Polipoli (1075) springs. There are seven other ground water tunnels near these diversions not shown **Exhibit 19** but listed in **Appendix D** and are identified as the Cornwall Tunnel (4020-002), Waikaalu Spring (3920-002), Polipoli Tunnel (4019-001), Morton Tunnel (4020-003), Waihou Spring (3921-001), Waikaukane Tunnel (4020-001), and Waikaahi Tunnel (4021-001) that may be confused with these four surface water springs. No reported flows from these diversions or tunnels have been made to the CWRM for irrigation and livestock watering and some domestic supply for remote camps.

Given the distance and non-reporting of flows, the MMP is not expected to impact these registered mauka diversions.

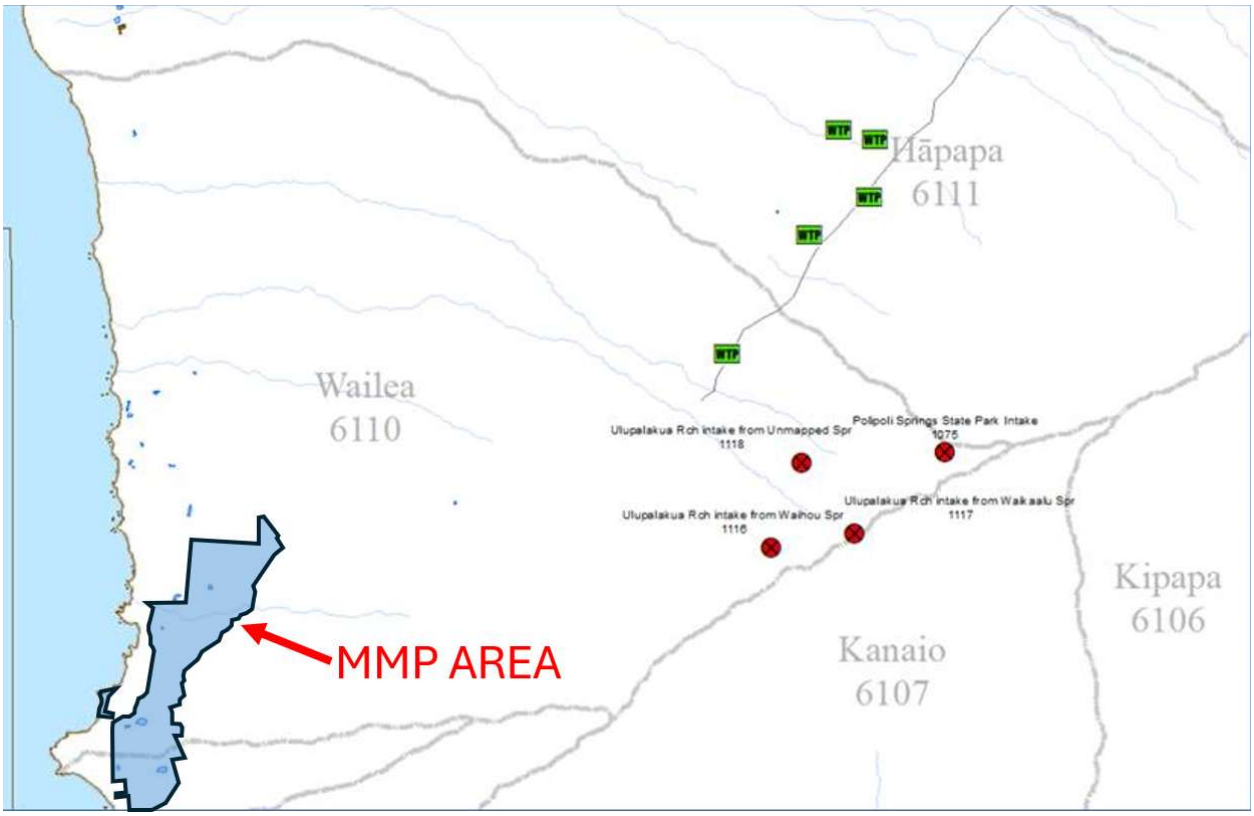

Exhibit 19. CWRM Wailea SWHU, Registered Diversions

4.4.4. Springs and Wetlands

Naturally occurring artesian springs and wetlands are considered surface water under the CWRM management (174C-3, HRS & 2019 WRPP [4]). There are significant wetlands of interest 0.8 to 5.4 miles north of the MMP from Auhana Road to the intersection of Pi'ilani Highway where there exists Kealia Pond and streams and wetlands in what is called the Kula Kai Area. [12,13] However, there are no anticipated impacts from the MMP on these northern drainage areas.

[12] Approximately 6 miles north of MMP in the Kahului ASA (60301).

[13] Beginning approximately 1.5 miles north of MMP with 13 ephemeral and intermittent streams (Keahuaiwi, Waiakoa, Ohukai, Kulanihakoi, Ko'ie'ie, Waiohuli, Waipuilani, Kawililipoa, Lā'ie, Kēōkea, Waimahaihai, Kīhei, Kaluaihakoko) (see https://savethewetlands.org/south-maui-gulches-and-streams/). None of these are monitored by the USGS streamflow data network.

Further review of published reports from the USGS [9] [10] and DLNR [32] and other professional hydro-geologist reports [33] [34] did not reveal significant springs in or near the MMP though the presence of small seeps is mentioned. A 2016 Master of Science Thesis using thermal imaging to locate significantly cooler coastal discharge indicated a significant spring source visible at low tides inside the southern corner of Kihei Boat Harbor, which is on the north side of the MMP; otherwise, there were no significant plumes revealed [35].

Further research of older published reports of from the USGS [9] [36] and DLNR [37] and other professional hydro-geologist reports [33] [34] for the Mākena area did not reveal significant springs in or near the MMP though the presence of small seeps along the coastline near sea level is mentioned in the 1969 Bowles reports. Bowles reported: "*On April 4 and 5, a traverse was made along the coastline from Keawakapu to Makena. Water samples and temperature data were collected in order to further delineate ground water flow through the property. The traverse as made between 11 a.m. and 12 noon during the lowest stage of the diurnal tides for that month. No large basal springs were located, however, numerous small seeps were found.*" Seeps are slow and intermittent while springs are faster continuous flow. Since the project is located near or above the 100-ft contour elevation and the seeps are near sea level, it is not anticipated that any land or excavation disturbances in the project area would impact these coastal seeps.

A more recent 2016 Master of Science Thesis [35] using thermal infrared imaging in conjunction with radon monitoring spatially located submarine discharge anomalies to qualify submarine groundwater discharge (SGD) on regional and local scales. On the regional scale, significant SGD was observed beginning 3 miles north of the Wailea project area in Ma'alaea Bay Kihei and 3.3 miles south of the project in Ahihi Bay and increasing towards the Ahihi-Kinau Area Reserve (see **Exhibit 20**). Therefore, regional scale anomalies indicate less potential for significant SGD in the MMP area. However, on the smaller local scale the study did observe a significant cooler plume visible at low tides inside the southern corner of the Kihei Boat Ramp (see **Exhibits 20 &**

21). This cooler plume is on the north makai corner of the MMP area but appears to be significant only during low tides and could be classified more like a large seep since the flow seems to be dependent on the tides. It is not known if this is a natural source or was created or modified by the construction of the boat ramp. Also, it is known that water from boat washing discharges into the area of the plume and may be related to the temporary cooler water spot observed. Regardless of the origin, this potential spring source seems to flow only at low tides and when the higher hydrostatic pressure from high tides exists and diminishes the cooler water anomaly. Otherwise, no other significant plumes were included in this reference or revealed in the MMP area.

Based on published hydrologic reports it is anticipated there will be little to no impact on springs, wetlands, and coastline seeps from the MMP

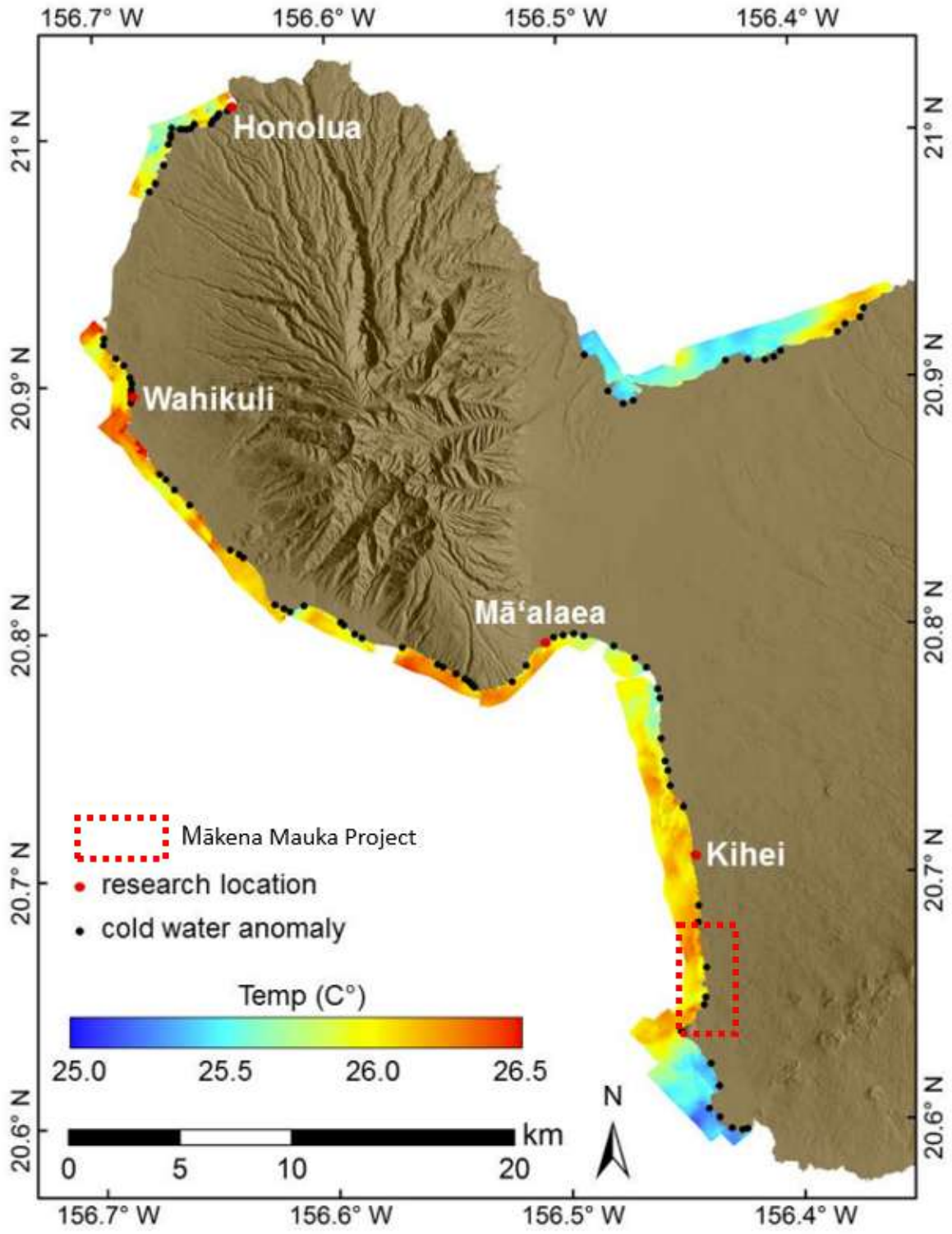

Figure 8: Regional scale TIR imagery of Maui obtained 07-08 June 2014 showing locations of potential SGD.

Exhibit 20. Regional Thermal Imaging of Potential SGD (modified Fig 8. from Kennedy, [35])

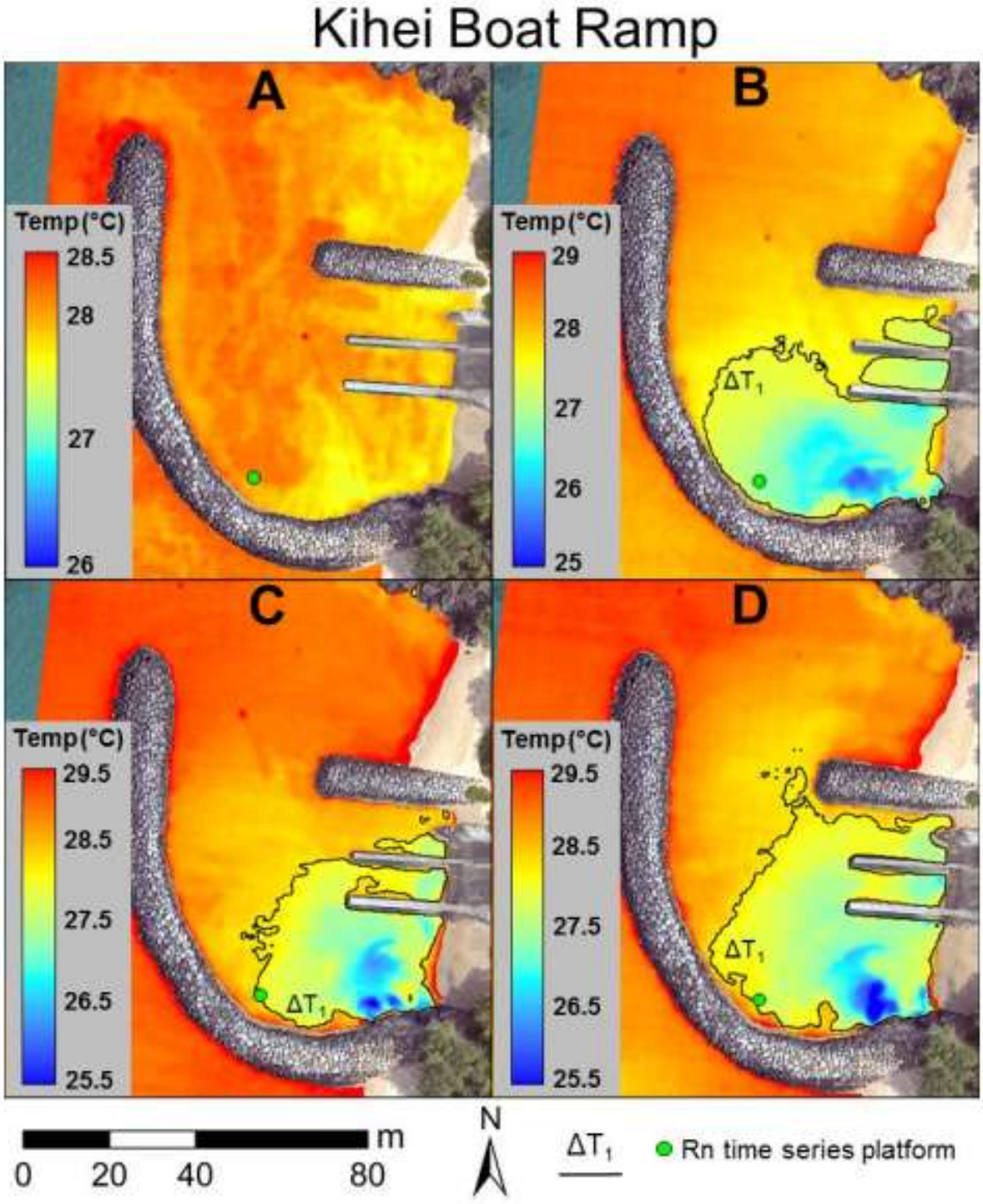

Figure 10: Kihei boat ramp UAV-TIR imagery showing the ΔT_1 plume contour over the course of dropping tide. (A) 07:00 High tide, (B) 10:00 dropping tide, (C) 11:00 dropping tide and (D) 12:00 low tide.

Exhibit 21. Local Thermal Imaging of Potential SGD at Kihei Boat Ramp (Fig 10. from Kennedy, [35])

4.4.5. Surface Water Quality Issues

The State Department of Health, Clean Water Branch (DOH CWB) and U.S. Army Corp of Engineers (USACE) are the responsible entities in regulating surface water quality issues statewide under the Clean Water Act. There are 19 active National Pollutant Discharge Elimination System (NPDES) permits within the Kamaʻole ASA [38].

The main concern for surface water quality is runoff from storm events where contaminant concentrations increase. The proposed MMP is not expected to significantly add to nutrient loads in surface water during storm events given 1) the MMP's relatively small size relative to the overall drainage area, 2) the use of LEED certification in individual MMP design and maintenance, and 3) compliance with the County's recent stormwater quality runoff regulations.

4.5. MDWS CMS

Figure ES.3 Wailuku and Central Aquifer Sectors, Maui Department of Water Supply Central Maui System

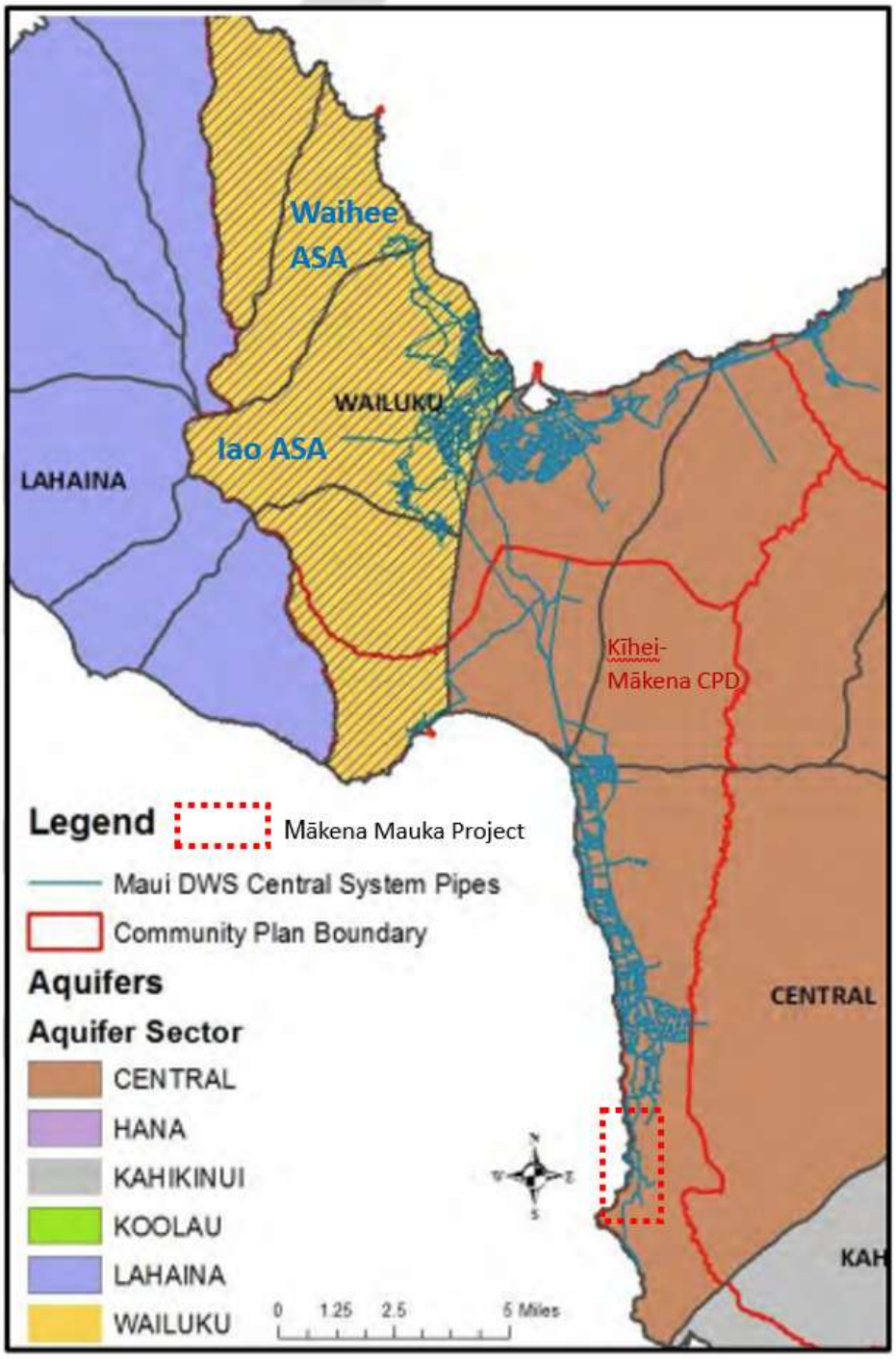

Exhibit 22. MDWS CMS (PWS 212) (modified from Maui Island WUDP [1])

Exhibit 22 is a source and transmission map detailing the general areas served by the MDWS CMS. The MDWS CMS provides ground and surface water for both potable and non-potable needs in and or from the ASA of Haiku (60401), Pāʻia (60302), Kahului (60301), Waiheʻe (60103), ʻĪao (60102), Waikapū (60101), and Kamaʻole (60304). These hydrologic unit areas historically and currently closely entwine water imports and exports between these areas. Surface water sources from ʻĪao and Waiheʻe also contribute to the CMS. There are no MDWS sources in the Kamaʻole ASA, but the area is dependent on the CMS for its potable needs.

The MMP is part of the MDWS CMS service area having been one of the original partners (along with MDWS and others) in bringing the transmissions lines from Central to South Maui, later building three MDWS water tanks to service Wailea, and installing all MDWS water distribution lines to the MMP parcels.

4.5.1. CWRM ʻĪao Allocations

Since the MMP plans to obtain around 7golffdd% of its maximum/peak day water demands (0.092 Mgd) from the MDWS CMS while exploring other source options as discussed, ground water use permits (GWUP) that limit the 12-MAV pumpage from individual wells in the ʻĪao ASA (60102) GWMA (see **Exhibit 10**) are relevant to the MMP and are discussed in this section.

There are currently fourteen (14) wells under twelve (12) basal ground water use permits (GWUPs) for a total allocation of 19.089 Mgd (see **Appendix L**) in the ʻĪao

GWMA.[14] Therefore, 0.911 Mgd is currently available for allocation from the basal ʻĪao GWMA.

If more ʻĪao ASA ground water allocation is required by MDWS for the MMP then a ground water use permit application (GWUPA) must be submitted by MDWS. However, according to the CWRM January 2, 2025, Monthly Bulletin (**Appendix M**), there are five (5) pending GWUPAs totaling 0.982 Mgd, the bulk of which is MDWS' GWUPA 852 for 0.841 Mgd from the high-level Kepaniwai Well (5332-002), which would not count against SY. Therefore, there are four (4) pending requests totaling 0.222 Mgd that can be accommodated by the currently available 0.911 Mgd from the ʻĪao GWMA.

Also, four (4) of these applications have been pending for more than 8 years with no clear movement forward, while the recently published GWUPA 1187 for a county park irrigation water from a new well has been requested. Even MDWS's GWUPA 852 path forward is not addressed in the MDWS Maui Island WUDP. However, GWUPA 852 could be amended and moved forward for CWRM consideration without having to wait for the other long-pending GWUPAs. Regardless of the status of all the published pending GWUPAs for ʻĪao there is sufficient allocation available for the MMP from the ʻĪao GWMA should all these pending applications be approved as requested.

A flowchart of the GWUPA process can be found at the CWRM website at https://files.hawaii.gov/dlnr/cwrm/forms/dgwup.pdf. It is statutorily a 90- to 180-day process to appear before the CWRM for decision making but has proven to be very contentious and takes much longer, as is shown in the CWRM Monthly Bulletins.

MDWS appears to be managing their current GWUPs in ʻĪao adequately. Actual reported pumpage from the ʻĪao ASA basal and high-level dike areas as of June 2024, is currently 16.395 Mgd based on a 12-MAV, which is 3.605 Mgd below the 20 Mgd SY for the ʻĪao ASA and 2.694 Mgd below the current total non-caprock allocations that count

[14] Three (3) allocations from high-level sources currently do not count against the ground SY as they were instead combined with and considered for impacts to interim instream flow accounting by virtue of the CWRM decision and order from Na Wai Eha CCH MA0601-1 for GWUP 691: ʻĪao Tunnel (Puako) 5330-002 and GWUP 920 ʻĪao Tunnel (Kepaniwai) 5332-005 & GWUP 921 Kepaniwai well 5332-005. This may change in future CWRM decisions.

against SY. This is in part due to conservation efforts of the MDWS where metered water use in the CMS has declined by over 4% from 2006 to 2020 while water meters increased by 14% from 2006 to 2020 (based on MDWS annual reports) and by leak detection and water auditing analysis performed by MDWS.

Under HRS 174C-48, the CWRM must delegate to the county boards of water supply the authority to allocate municipal use of water within their distribution systems, subject to the limits of water supply allocated to the county boards of water supply in their role as water purveyors. Other non-MDWS allocations in ʻĪao ASA amount to 0.026 Mgd, leaving the MDWS with 2.688 Mgd of unused allocation that could be allocated within the MDWS CMS. Therefore, it would appear MDWS and the ʻĪao ASA alone have enough cushion between actual pumpage vs. allocated use to manage and provide for the MMP future needs within the MDWS current allocations, long-pending competing GWUPAs notwithstanding.

The CMSA is also serviced by other ASAs, primarily the Waiheʻe ASA (60103), which is pumping only 51% of its SY of 8 Mgd. Third, the MDWS 2023 Maui Island WUDP identifies the primary alternative source strategy for CMS, as well as MDWS Upcountry System, as developing more water from the Haiku ASA that is pumping only 3% of its 24 Mgd SY. MDWS is currently pursuing feasibility studies required under the East Maui Consent Decree to implement this source strategy.

The MDWS CMS also incorporates a single microfiltration surface water treatment plant, the ʻĪao Water Treatment Facility, which is currently able to produce an average of approximately 1.7 Mgd of drinking water from the ʻĪao-Waikapū Ditch. According to the Maui WUDP [1], MDWS plans to increase capacity of the treatment facility for wet season use and new capacity has already been added to treat up to 3.2 Mgd in the future to be consistent with the CWRM Na Wai Eha surface water allocations

totaling 3.2 Mgd.[15] The latest 12-MAV of reported use from for the ʻĪao-Waikapū Ditch as of August 2024 is 1.894 Mgd.[16]

Other alternatives are also available to relieve the need for additional allocation from MDWS CMS. MMP will also be designed to use County R-1 when it becomes available for non-potable needs. Conservation measures will be incorporated into the MMP development to continue and further the conservation efforts that have proven effective in the ʻĪao ASA by MDWS. Existing ground water sources in the project area may have additional capacity brought about by conservation of existing users. Lastly, new ground water sources could be drilled for non-potable uses to reduce the reliance on the CMS source or existing unused wells near the MMP for irrigation needs without impacting the Kamaʻole ASA. Thus, the MDWS CMS should be able to meet the future potable demands of the MMP within the current MDWS allocations, though supplementing the irrigation demands of the MMP through other non-potable sources would further lessen demand of the MDWS CMS.

4.6. Alternative Water Sources

Alternative water sources are those other than the available natural ground or surface water sources covered in Sections 3.3, 3.4, and 3.5 of this report.

4.6.1. Wastewater Reclamation Facilities (WWRF)

Presently, the Mākena WWRF does not produce R-1 quality effluent and the WWRF R-2 effluent discharges into an unlined basin two to three times a year. Discharge amounts varied from 50,000 gallons from the reuse tank to 96,000 gallons directly from the clarifier. In the past, the Mākena WWRF used to produce R-1 effluent that was pumped into No. 10 Lake, where it mixed with well water, and then was used

[15] The total of 3.2 Mgd consists of surface water use permits SWUP.2178.6 for existing uses of 1.784 Mgd & SWUP.2179.6 for future new uses of 1.416 mgd from the ʻĪao-Waikapū Ditch.
[16] As reported to CWRM from MDWS as of January 2025.

to supply water for irrigation purposes. So, this is an underutilized alternative water source.

Also, the Kīhei WWRF serves the South Maui area from Wailea to Sugar Beach with an R-1 production capacity of 8.0 Mgd (Table 14-20 [1]) but the average dry weather flow to the WWRF for FY2024 is only 3.831 Mgd. As of FY2024 it is estimated that 2.005 Mgd of excess R-1 is available. The MMP may be designed to use and accept any available County R-1 water for the new MMP parcels should they need to augment or replace their own Mākena WWRF reuse abilities.

4.6.2. New MDWS Infrastructure Supply

The only current MDWS CIP to increase the CMS infrastructure supply is a 0.5 Mgd Waiheʻe ASA Well by FY28. Current SY, pumpage and monitoring data from CWRM for the Waiheʻe ASA indicate that this should be a reasonable source though it must be monitored closely as more than one-half (1/2) total pumpage is concentrated in the southern half of the ASA.

Additionally, the ʻĪao surface water treatment plant has the potential to increase their current limited use of ʻĪao ditch water. Presently, MDWS is awaiting their official approved surface WUP from the Na Wai Eha Contested Cased Hearing (CCH-MA15-01) decision for 3.2 Mgd.[17] MDWS is presently limiting their use of ʻĪao-Waikapū ditch water to 3.2 Mgd on a daily basis but was hoping this 3.2 Mgd limit will be on the more flexible moving average annual basis. So long as the interim IIFSs are met there are times when more than 3.2 Mgd on a daily basis can be taken so long as the average annual remains below 3.2 Mgd. The moving average annual basis will allow MDWS to make use of high flows and get credit for when less than 3.2 Mgd can be diverted so long as the IIFS minimum is satisfied. For example, at times the treatment plant cannot take ditch water when ditch water turbidity is too high and must shut down to avoid

[17] See https://dlnr.hawaii.gov/cwrm/newsevents/cch/cch-ma15-01/

damage to the filtration system, yet this non-diversion event cannot be credited towards the average annual need of 3.2 Mgd. However, the Supreme Court issued an opinion in June 2024 and approved Na Wai Eha surface WUPs should be issued as prescribed by the CWRM on a daily rather than a 12-MAV basis.[18] To date, Na Wai Eha surface WUPs have not been issued.

4.6.3. Desalination

Brown and Caldwell (B&C) performed a desalination feasibility study for the MDWS in 2024, and the following information is a summary of their presentation at the 2025 Pacific Water Conference. B&C estimates that the MDWS CMS will need an additional 7-11 Mgd of water by 2040. They recommend three desalination sites in the Kama'ole ASA – two in the Kihei area and one in the Wailea area - using brackish groundwater as the source. Their suggested plant would be a 0.5 Mgd capacity (expandable to 2 Mgd) RO facility powered with solar energy and sited with a deep injection well to dispose of the brine waste. In terms of cost, the 0.5 Mgd facility is estimated to cost $119 million with annual operating costs of $2 million. The expanded 2 Mgd facility is estimated to cost $261 million with annual operating costs of $3 million. Both facilities would produce water at a unit cost of $25/1000 gallon. In comparison, MDWS single family dwelling monthly billing rates beginning at $2.13/1000 gallons for the first 5,000 gallons to a maximum of $8.12/1000 gallons for usage amounts over 35,000 gallons.

Maui Island WUDP identifies three crucial issues with desalination: 1) cost; 2) pesticide contamination in brackish source water for desalination; and 3) disposal of the reject brine water [1]. However, the Shores of Kohanaiki in Keauhou, Hawai'i has successfully addressed these issues. The Shores of Kohanaiki is an exclusive housing and golf course development like the MMP that desalts brackish ground water for golf

[18] See https://files.hawaii.gov/dlnr/cwrm/cch/cchma1501/2024-SCOT-21-0000581.pdf

course irrigation needs and injects the reject brine deep into saltwater below the thin brackish basal aquifer in the Keauhou ASA. It has been operating and monitoring ground water since 2007 without observing any negative impacts to the resource or marine environment.

MMP is planning to supplement all of their irrigation needs with 65% RO recovery desalination of brackish well water according to TNWRE [5] from their own water system. This would require them to pump a maximum/peak of 1.464 Mgd to supply 1.282 Mgd of potable and irrigation water demand (**Appendix N**). The report also estimates the generation of a maximum/peak of around 0.182 Mgd of concentrate from RO treatment at full build-out that would require disposal. The report states DOH's current position is that it cannot be reused for irrigation (though the mixing with brackish ground water could potentially be appropriate for golf course irrigation if DOH changes its position) and a disposal [injection] well would need to be installed for proper disposal [5].

4.6.4. Conservation

Conservation is considered an alternative source by using water more efficiently to reduce water demands and thereby increasing the availability of supply. Current conservation efforts by MDWS in the ʻĪao ASA have shown to be effective as the MDWS metered water use in the CMS has declined over 4% since 2006 to 2020 while water meters increased by 14% from 2006 to 2020 (based on MDWS annual reports). The 12-MAV for the ʻĪao ASA has declined by more than 17% from 2006 to 2023 based on reported pumpage to the CWRM.

Conservation is a recommended strategy for all regions serviced by MDWS for both agricultural and non-agricultural uses under the MDWS WUDP [1]. Additionally, MDWS recently adopted its Water Shortage and Conservation Plan (WSCP) [39] in April of 2024. The WSCP follows the American Water Works Association's (AWWA) guidelines of AWWA-M52 [40] for Conservation Planning and AWWA-M60 [41] for Drought

Preparedness and Response. The main long-term goal of the WSCP is an overall 20% reduction of per capita water demand by 2040 in all their service systems. This includes the CMS that will service MMP's potable needs.

Conservation can be characterized as **demand side strategies** that generally promote reduction in water use, and **supply side strategies** that focus on water system efficiency and loss control from source to end use. Demand-side management options are usually programs undertaken by a water utility to encourage the use of efficient and low-flow fixtures and appliances or practices by its customers, or to encourage customers to shift their time of use. Such programs often provide direct installation or incentives such as rebates to encourage the purchase of efficient fixtures or appliances. As described in the MDWS 2024 WSCP, MDWS has implemented replacement and rebate incentive programs to increase use of Advanced Metering Infrastructure (AMI) smart meters, rain barrels, low flow showerheads, ultra-high efficiency toilets (WaterSense® certified 1.28 gals per flush vs. older 3.5 gals per flush), and other low flow fixtures. Other products such as Smart Rain, a smart leak detection system for irrigation systems, are estimated to save 25-30% of water annually. Products such as Smart Rain optimize water usage and reduce waste by automatically adjusting watering schedules based on real-time conditions and cutting off water flow in the event of a leak. Utilizing this technology, moving forward reduces future demand and retrofitting existing subdivisions, such as Wailea Palms has done, will lead to major water savings.

MDWS also provides public outreach to raise customer awareness and feedback through online educational conservation content, feedback surveys, and QR codes on the monthly water billing to link to MDWS news and water savings tips including a comprehensive landscaping water conservation handbook [42] as irrigation is a significant portion of average domestic demand.

Other demand components focus on regulatory controls (e.g., 2024 MDWS WSCP recommends a new ordinance requiring WaterSense low flow fixtures for new developments, tiered rate structure modification, etc.) and continued MDWS

educational outreach programs to instill a conservation mindset and support other programs. MDWS is working on a conservation bill that would restrict domestic irrigation to no more than 3 days a week and between the hours of 8a-6p. If passed, this would save an estimated 6 Mgd from and for MDWS customers alone and would additionally result in significant irrigation savings from private wells.

Supply side measures include water audit/non-revenue water analysis, leak detection and meter maintenance and replacement [1]. Smart meters or other AMIs will take another 2 years to fully implement for existing users.

MDWS conducts annual water audits following the AWWA M36 [43] and uses the AWWA Free Water Audit Software © in compliance with the CWRM published Hawai'i Water System Audits and Water Loss Control Manual and the 2016 Hawai'i State Legislature Act 169. CWRM reviews and validates these annual water audits and considers them to be acceptable.[19]

Although not currently part of MDWS conservation programs, MDWS is working towards an ordinance to address concerns about evaporation losses from residential pools. It is unknown at this time the amount of new and existing pool area for MMP that would translate into a range of a total additional demand based on the evaporation atlas [14] rates for the MMP area. The following LEED guidelines will help to reduce these pool losses and if MDWS's overall goal of 20% reduction in average daily demand for new projects can be realized then the total domestic demand could approximate 654,000 gpd. MMP specifically has committed to adhere to LEED certification for all buildings greater than 500 square feet within the SMA (phase 1) lands.

Although conservation appears to have contributed to reducing pumpage from the ʻĪao ASA, MDWS would rather increase supply through CIP projects that increase system capacity. MDWS does not want to rely on individual customer responsible

[19] Personal communication with CWRM State drought coordinator.

behavior without ordinances in place that can allow MDWS to turn off water meters per DWS Rules and Regulations, Section 3-10, to enforce such an ordinance.

4.6.5. Storm Water

The MDWS Maui Island WUDP [1] addresses stormwater reuse as capturing and reusing surface water runoff from storm events. Stormwater reclamation can potentially provide water for non-potable water demands such as irrigation and toilets. There are a variety of stormwater technologies as illustrated in **Table 3** (from Table 8.25 from the MDWS Maui Island WUDP [1]) below ranging from small rainwater catchment systems to reservoir storage systems. The entire MMP lies makai of the DOH's Underground Injection Control (UIC) Line; therefore, dry wells may be used to capture stormwater runoff and inject it into the brackish portions of the aquifer.

Due to contaminants picked up by stormwater runoff, various levels of treatment may be necessary. Stormwater reclamation methods that employ capture and storage technologies must be planned, constructed, and operated to ensure minimal impact to streams, riparian environments, conservation lands, water rights, cultural practices, and community lifestyles. Reduced reliance on ground water and surface water for landscape irrigation may be appropriate, especially when incorporated into the design of development projects to maximize water retention and minimize infrastructure costs. However, there is no code requirement for development projects to incorporate water retention or reclamation design features for the purpose of supplementing non-potable water supplies.

Table 4. Table 8-25 Stormwater Reclamation Technologies

Technology	Description
Source Reuse	Use rain barrels or cisterns to collect precipitation or stormwater runoff at the source to provide water for a variety of non-potable purposes or, with treatment, potable water.
Small Lot Reuse	Manage precipitation or runoff as close to source as feasible. Examples: infiltration planter boxes, vegetated infiltration basins, eco roofs (vegetated roofs), porous pavements, depressed parking lot planter strips for biofiltration, narrowed street sections with parallel or pocket bioswales.
Stormwater Capture	Employ ditches, storm drainage system interception, dry wells, infiltration galleries, and injection wells to capture stormwater.
Stormwater Storage	Use aquifer storage and recovery, stream-bank storage, detention basins, and surface reservoirs to store stormwater.
Stormwater Distribution	Distribute stormwater via gravity ditch or pipe networks, operated/regulated ditch systems, pressure pipe networks, onsite wells.
Source: CH2MHill. *Hawaii Stormwater Reclamation Appraisal Report.* Prepared for the U.S. Bureau of Reclamation and the State of Hawaii Commission on Water Resource Management. July 2005	

4.6.6. New Private Brackish Wells

As described in Section 4.3.3 of this report, one new brackish well could be drilled within the MMP to develop approximately 350 gpm or 0.5 Mgd and stay within the SY limits established by the CWRM assuming uniform spacing coastal discharge. This new well is the ATC Mākena 8 (3925-004) which has been recently constructed and tested to show a yield of 350 gpm [5] [44]. To further minimize impacts on the water levels, chloride concentrations, and coastal leakage along the MMP shoreline, other new brackish irrigation wells could also be drilled north and south of the MMP area to meet the same demands and spread pumpage stress over a greater area to lessen localized ground water impacts. However, this would incur additional costs of drilling, transmission, operation, and maintenance.

5. CUMULATIVE/SECONDARY IMPACTS TO WATER RESOURCES & NEARBY DEVELOPMENT

This section seeks to understand the hydrological impacts MMP will have on these developments and the hydrological impacts these planned developments (MMP included) will cumulatively have on the Kama'ole ASA and the MDWS CMS.

Appendix P shows excerpts from the 2019 Maui County Water Use Development Plan (MWUDP) with the state's projected demands in the relevant aquifer sectors. Section 15.6.6 states that the Kama'ole ASA irrigation demands--the majority use in the ASA--will be expected to increase from 3.68 Mgd to 5.59 Mgd (an increase of 1.91 Mgd) in the 2015-2035 planning period, still well below the 11 Mgd SY. Tables 14-30 and 14-33, along with figure 14-28 of the MWDUP, illustrate the projected future demands served by MDWS CMS. The projected 34.673 Mgd by 2035 is nearing the 36 Mgd SY of the Wailuku aquifer sector, but the Haiku ASA is also viable to pump from due to its relatively low pumping compared to its SY. Table 16-31 of the Maui Island WUDP shows the projected local demands of the Ko'olau aquifer sector, which Haiku ASA is in. The 1 Mgd expected demand by 2035 is far below the 24 Mgd SY of Haiku ASA. In summary, the groundwater sources are capable of sustainably supplying the future projected demands of the Kama'ole ASA and CMS based on the MWUDP projections [1].

However, the Maui Island WDUP projections were made in 2014 with information that does not include the expected development details in **Exhibit 23** below. **Appendix Q** is a summary of Akinanka estimates of additional water demands of known planned development near the MMP area within the Kama'ole ASA. **Exhibit 23** details the locations of the ongoing and potential future projects listed in **Appendix Q.** Most of the projects are in progress and have either taken steps towards approval or have already undergone construction. A few projects shown are ideas of future projects and not currently in the planning stage.

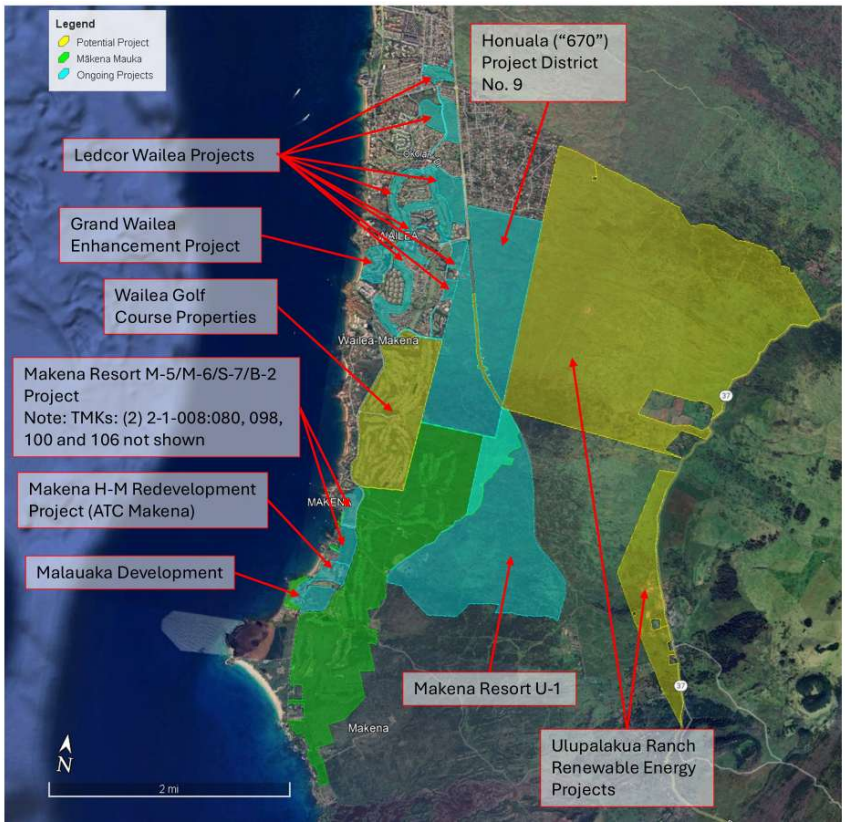

Exhibit 23. Map of Planned and Potential Projects Nearby

Combining MMP demands with other projects and DHHL reservations within the Kama'ole ASA, the total demands are summarized in Table 5 below. Both the average and maximum/peak day operational pumpage will remain below the 11 Mgd SY of the Kama'ole ASA.

Table 5. Total Demands on Kama'ole Aquifer (Including MMP)

	Total Average	Maximum/Peak Day
Current 12-Mav Use[1]	3,660,000	3,660,000
Planned Developments	3,019,728	4,529,593
DHHL Reservations	2,547,000	2,547,000
Total	9,226,728	10,736,593

[1] As of January 2025

.

Though these projected demands are both below the conservative Kama'ole ASA sustainable yield of 11 Mgd, they are near enough to warrant attention from the CWRM. The projected average use is 84% of SY and may trigger informational public hearings by the CWRM to assess the ground water situation to devise mitigative measures[20], such as those described in Section 6 of this report. Though more relevant to operational hydraulic, backup, and fire flow considerations rather than impacts to the aquifer, the projected maximum/peak day use is 98% of the SY and may trigger designation proceedings whereby regulation of pumpage will be increased through water use permits.

From the MDWS CMS, it is estimated that an additional average demand of 0.792 Mgd and a maximum demand of 1.188 Mgd will be needed for the cumulative proposed future projects in the Kama'ole ASA. This would may require MDWS to develop new groundwater well sources for the CMS. As described in section 4.3.3, the Waiheʻe (**Exhibit 11/Appendix H**) and Haiku (**Exhibit 12/Appendix I**) ASAs are not being pumped to their SY and are viable sources to supply all the projected new development in the area.

As previously discussed in Section 4.3.3 of this report, the other cause for concern would be localized saltwater intrusion caused by concentrated pumping in one area. Pumping groundwater reduces the freshwater zone that floats above a saltwater zone in the aquifer, allowing the saltwater to encroach further inland and cause thinning of the basal lens. The immediate adverse effect would be that wells spaced too close together would cause chloride levels to increase due to well interference. Ideally, a adequately calibrated numerical model would help to answer these concerns but one does not exist for the Kama'ole ASA like it does for Waiheʻe, ʻĪao, and Waikapū ASAs (MDWS/USGS, [26]).

In lieu of a numerical model, observational data over time can be just as effective. Closely spaced wells would need to be closely monitored to adjust pumpages

[20] HRS §174C-44

to ensure chloride levels do not reach undesirable levels that reduce the utility of the pumped water. The twelve (12) Mākena-Seibu golf course irrigation wells constructed between 1977 to 1988 average approximately 670-feet apart from each other along a 7,250-ft long line at the average ground elevation of +216-ft msl have been operating for decades. As discussed in Section 4.3.3, the coastal discharge range should be limited to between 1.446 to 2.229 Mgd/mile and the current total 12-MAV pumpage from the ATC Mākena wells is 0.844 Mgd (see **Appendix R**), which is within the estimated 1.79 pumpage for the MMP coastline discharge limitations within the estimate SY for the ASA. Pumpage for ATC Mākena has decreased over time and managing pumpage such that current chlorides have remained below 1,000 ppm chlorides over the past 20 years except between 2012-2014. Original chlorides encountered and reported were only gathered for three wells and are shown by hashed lines for Seibu 4 (1000 mg/L in 1978), Seibu 6 (668 in 1984), and Seibu 12 (1,900 in 1989). Seibu 12 is not pumped. The important take away from **Exhibit 24** is that the chloride trends have been relatively stable with Seibu 4 seemingly improving with pumpage over time. In short, the pumpage at the Mākena wells has been managed well to keep chlorides stable in the area since 2016.

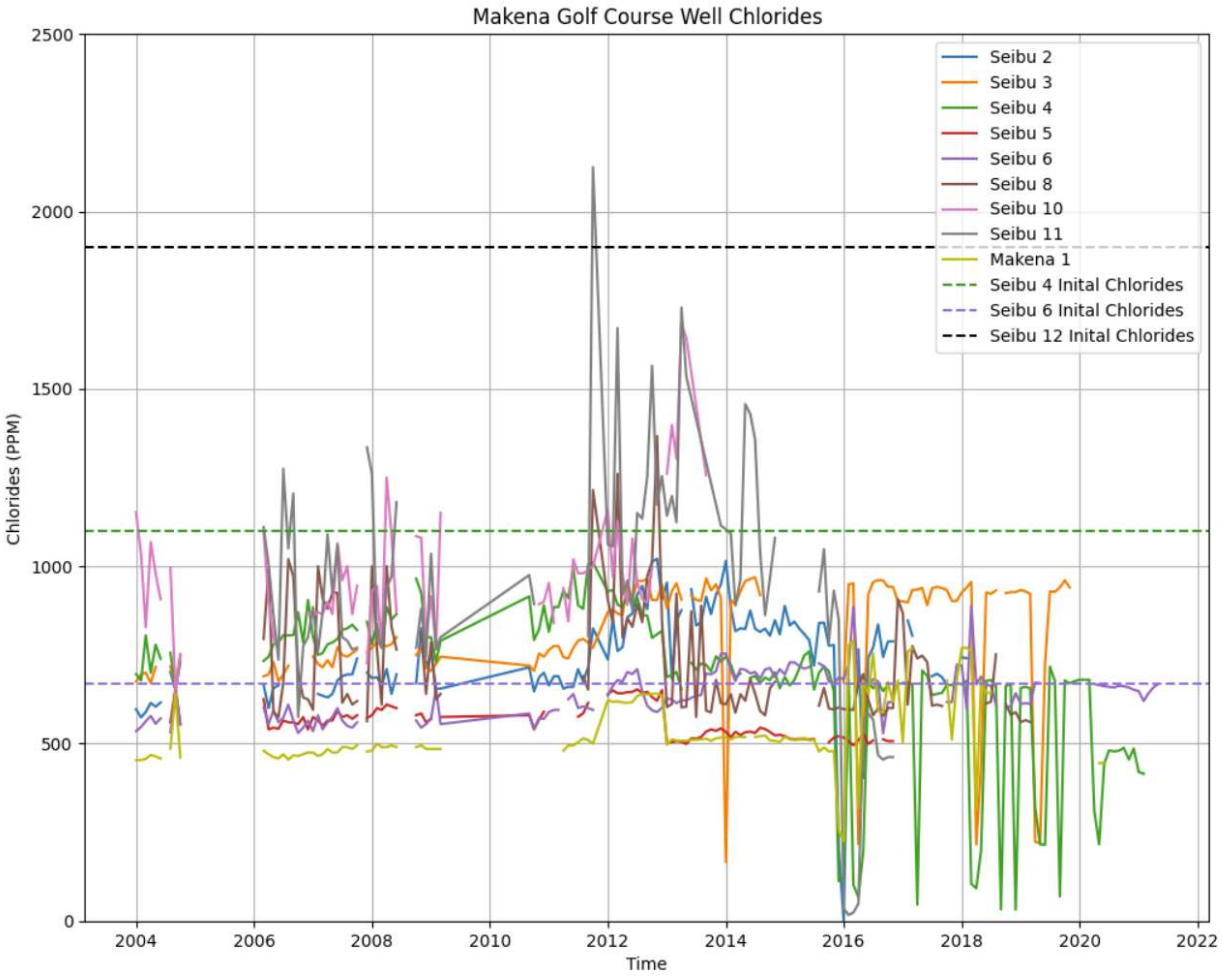

Exhibit 24. ATC Mākena Well Chlorides (as reported to CWRM March 2025)

6. MITIGATION MEASURES

To minimize the adverse effects on the MDWS CMS and Kama'ole ASA, we will primarily be focusing on water conservation strategies to reduce the water demands. 5This involves implementing strategies such as:

1. Installation of Low-Flow Fixtures: Utilizing low-flow faucets, showerheads, and toilets can significantly reduce indoor water consumption and lead to substantial water savings over time.

2. Pool Evaporation Covers: Pool evaporation covers will be used to minimize water loss due to evaporation. These covers can reduce evaporation by up to 95% according to the EPA [45].

3. Use of Non-Potable Water for Landscaping: Non-potable groundwater well sources and collected rainwater will be prioritized for landscape irrigation. This approach decreases the demand for RO treated potable water.

4. Efficient Irrigation Systems: The implementation of advanced irrigation systems, including drip lines and moisture sensors, will optimize water use. These systems deliver water directly to plant roots, reducing water loss due to runoff or evaporation.

5. Irrigation Scheduling: Irrigation will be scheduled during early morning and late evening hours to minimize evaporation losses. Midday watering will be avoided because that is when evaporation rates are the highest.

6. Xeriscaping and Drought-Tolerant Landscaping: Landscaping will incorporate xeriscaping principles and drought-tolerant, native plant species that require minimal watering. This practice not only reduces water demand but also promotes local biodiversity.

7. Rainwater and Stormwater Harvesting: Systems for rainwater and stormwater collection and reuse will be installed to capture runoff for non-potable uses, such as irrigation and exterior cleaning. This practice reduces reliance on groundwater and potable water sources.

7. CONCLUSION

MMP plans to minimize the use of MDWS water by developing their own water system with RO treatment to supply about 94% of their maximum water demands. This requires them to pump a maximum of 1.464 Mgd of water from the Kama'ole ASA, still very much below the 11 Mgd SY of the ASA when added to the current 3.660 Mgd pumping (33% of SY).

The remaining 6% of MMP's water demand (0.092 Mgd) will be supplied by the Maui MDWS CMS, sourced by the ʻĪao and Waihe'e ASA. As of January 2025, the actual reported non-caprock use is 13.157 Mgd, which is 2.694 Mgd below the current total allocations that count against SY. The Waihe'e ASA is pumping 5.518 Mgd, 69% of the 8 Mgd SY. Also, this is within the recent MDWS maximum reliable capacity and recent 3-

year forecast projections[21]. MDWS can also expand into the nearby Haiku and Waikapū ASAs, which have very low pumpage relative to their SYs. Given the current water availability in both the aquifer source and CMS, MMP's water demands will not overstress the groundwater resources of the CMS.

Considering the cumulative impact from future projects of developments in the area to the Kama'ole ASA, pumpage would rise to a maximum of 8.190 Mgd. If DHHL reservations of 2.547 Mgd were to be implemented, this would put the maximum future pumpage at 10.737 Mgd if the full amount of the reservations were to be pumped from the Kama'ole ASA. Although this would be below the SY of 11 Mgd, this would raise the pumpage to greater than 90% of the SY, which is something that could initiate designation of a GWMA under the CWRM.

To mitigate the impacts, MMP will be implementing conservation strategies to reduce their water demands. They will be ensuring LEED certified construction for buildings greater than 500 square feet.

[21] August 26, 2025 MDWS Notice https://www.mauicounty.gov/DocumentCenter/View/155090/Maximum-Reliable-Capacity-Analysis-2025-AUGUST-REVISE-20250826

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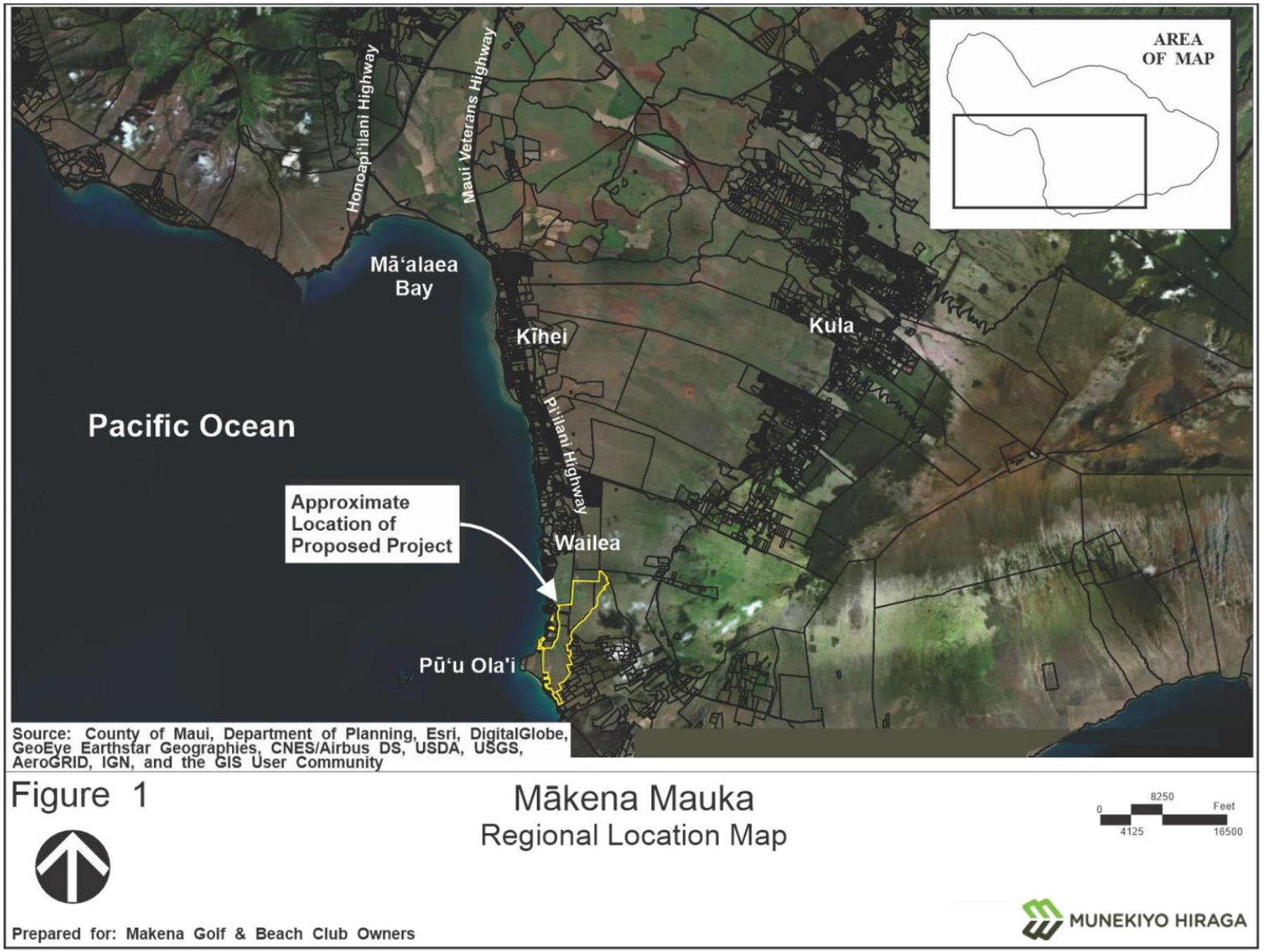
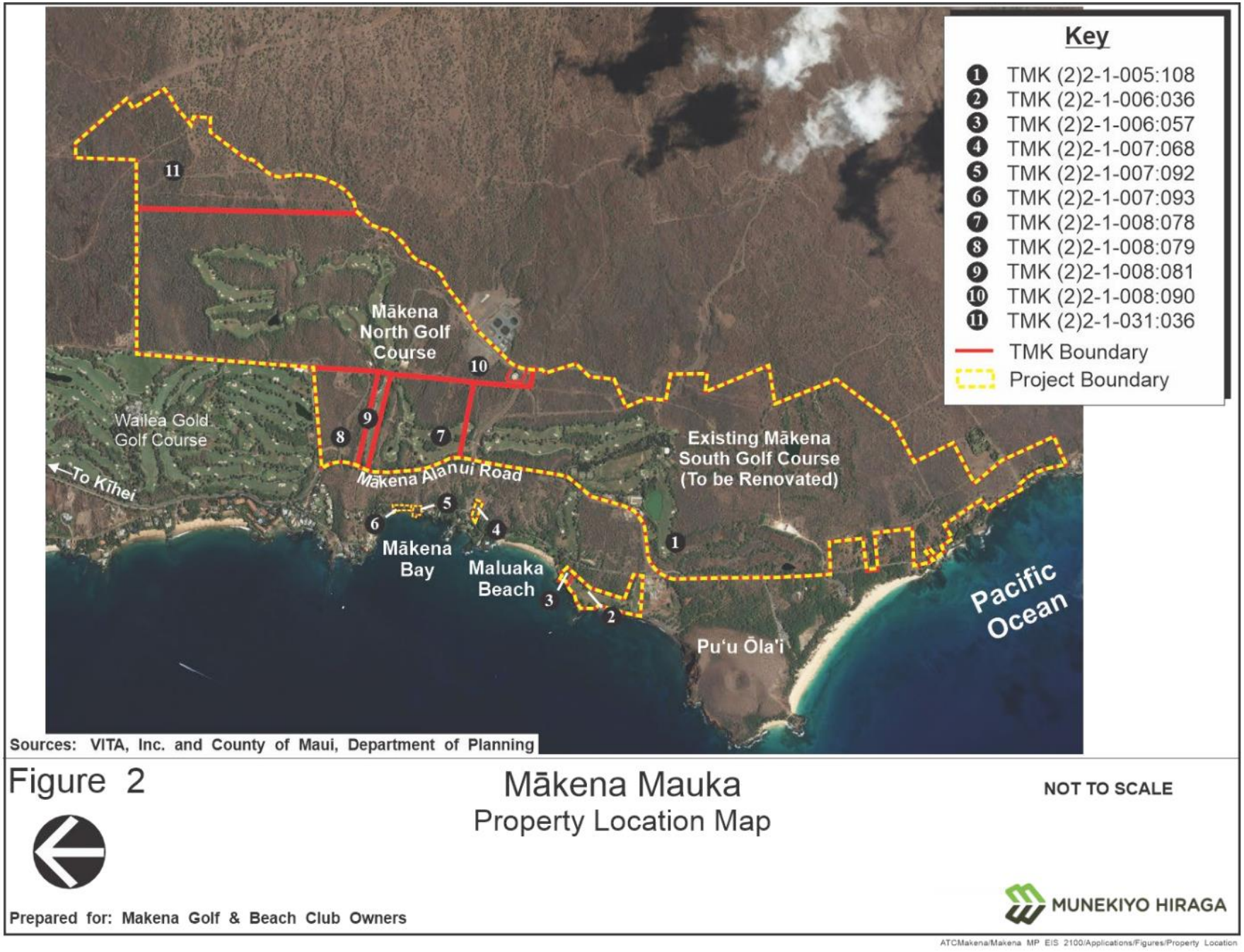
APPENDICES

APPENDIX A



Source: Makena Mauka, Environmental Impact Statement Preparation Notice , Munekiyo Hiraga, June 2024 Figure 1



Source: Makena Mauka, Environmental Impact Statement Preparation Notice , Munekiyo Hiraga, June 2024 Figure 2



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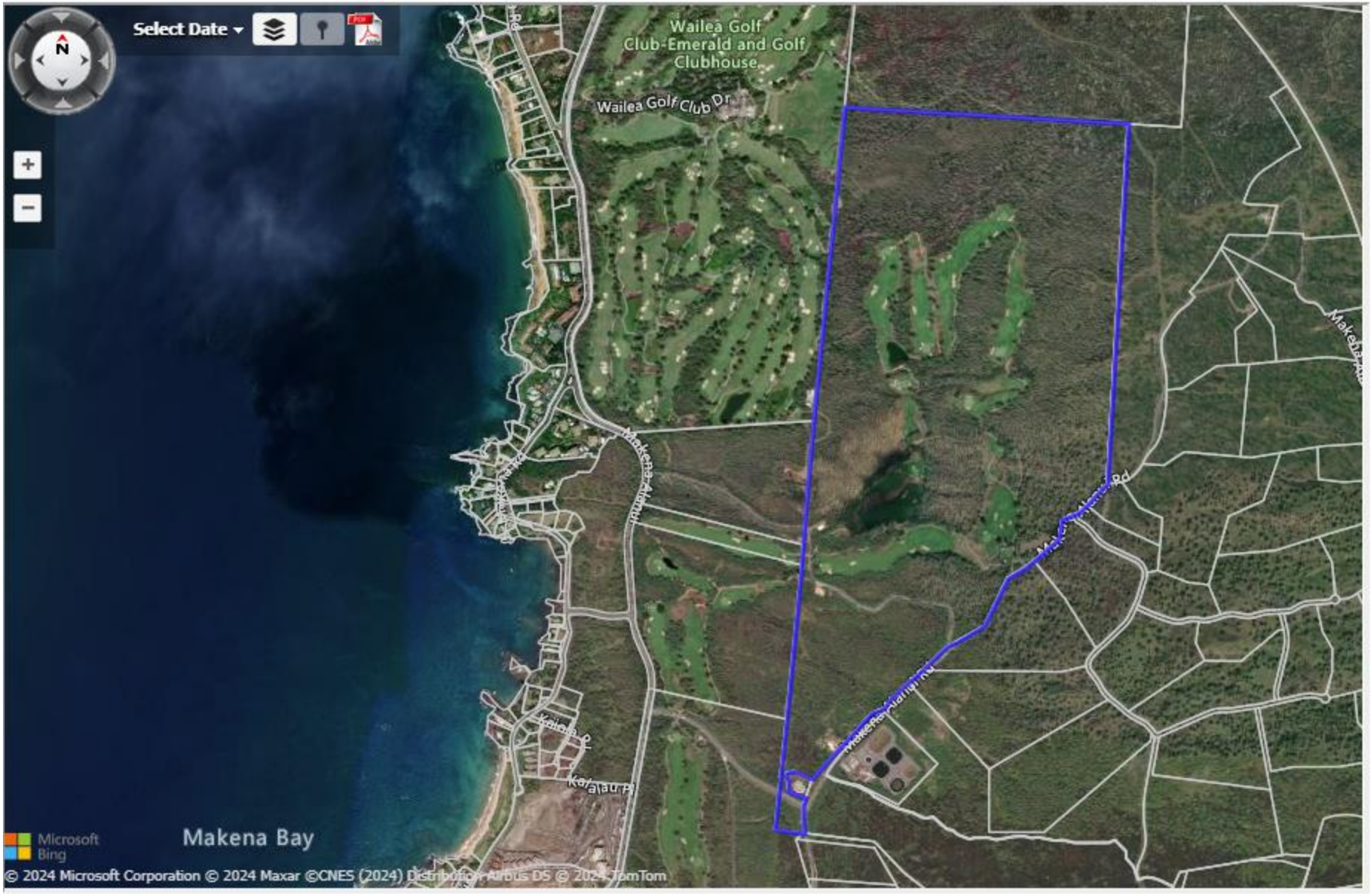

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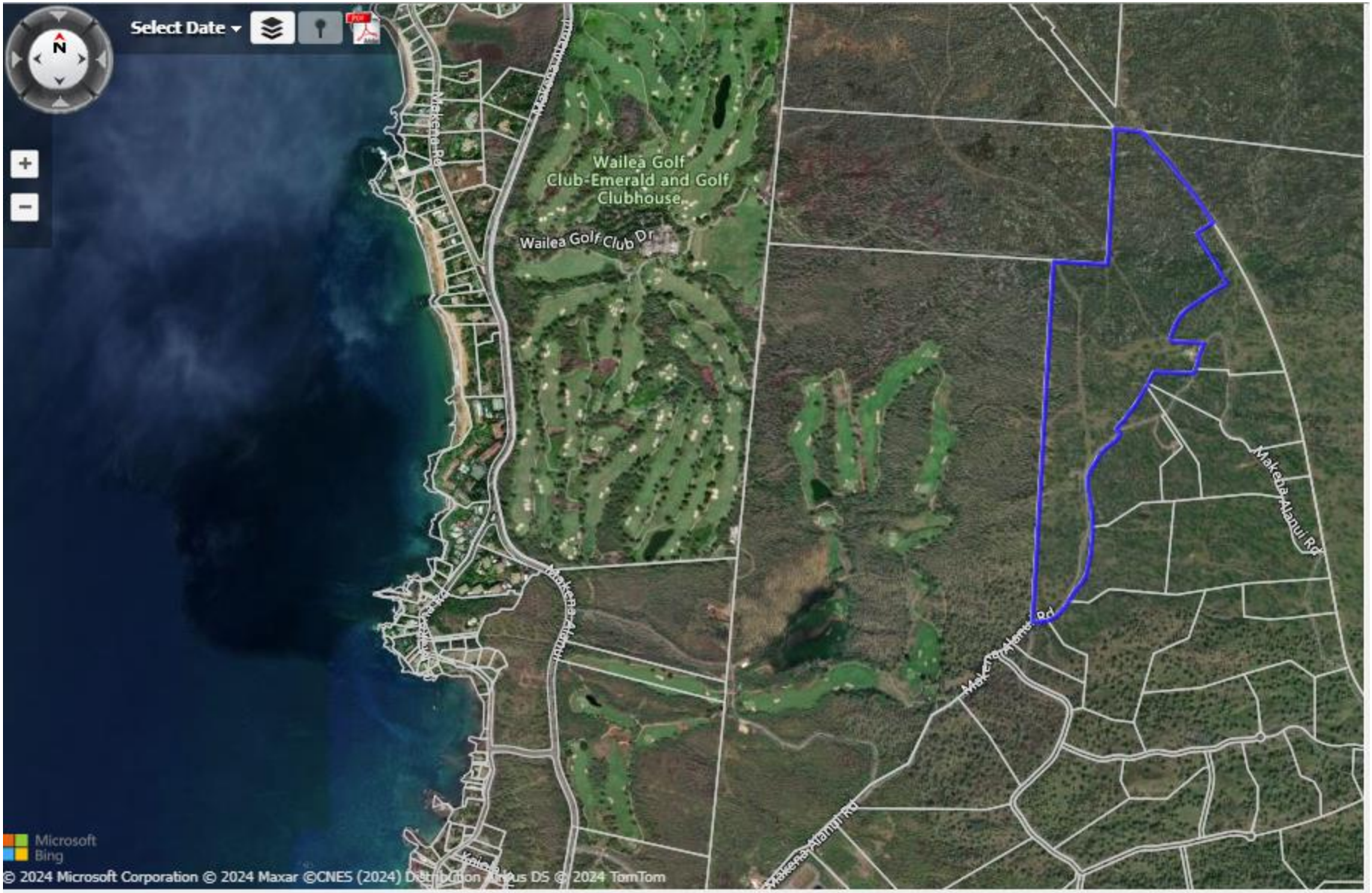

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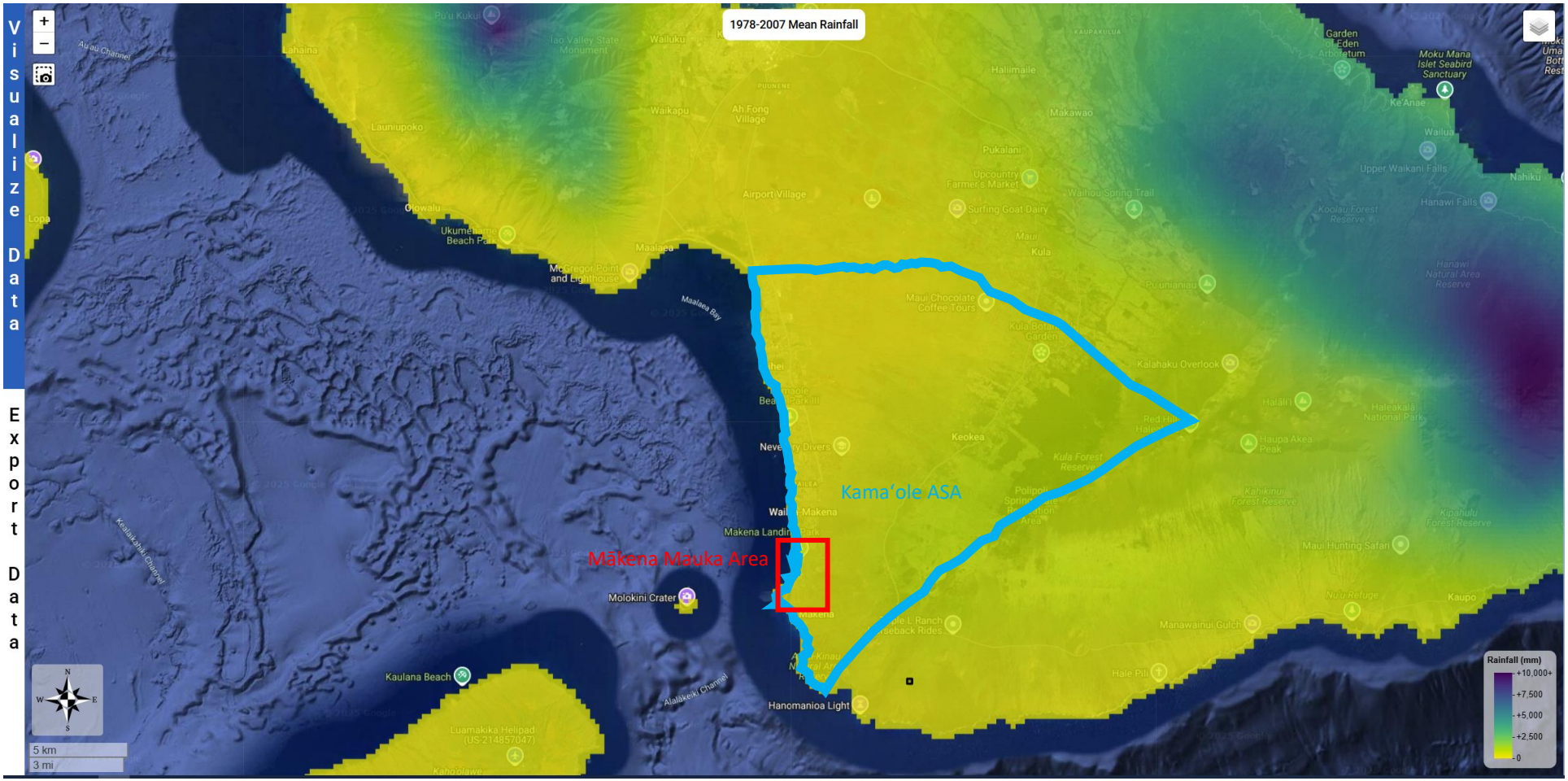
APPENDIX B



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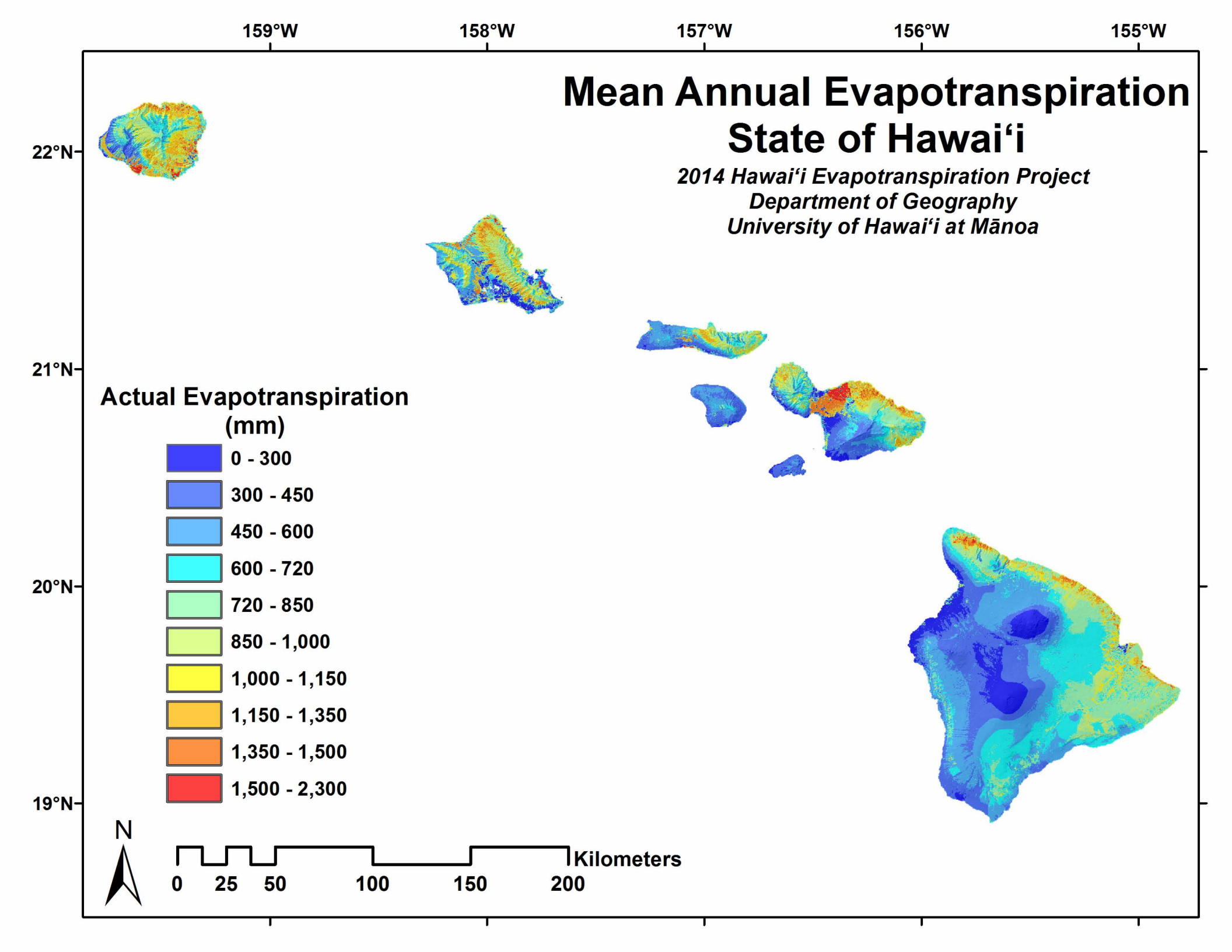
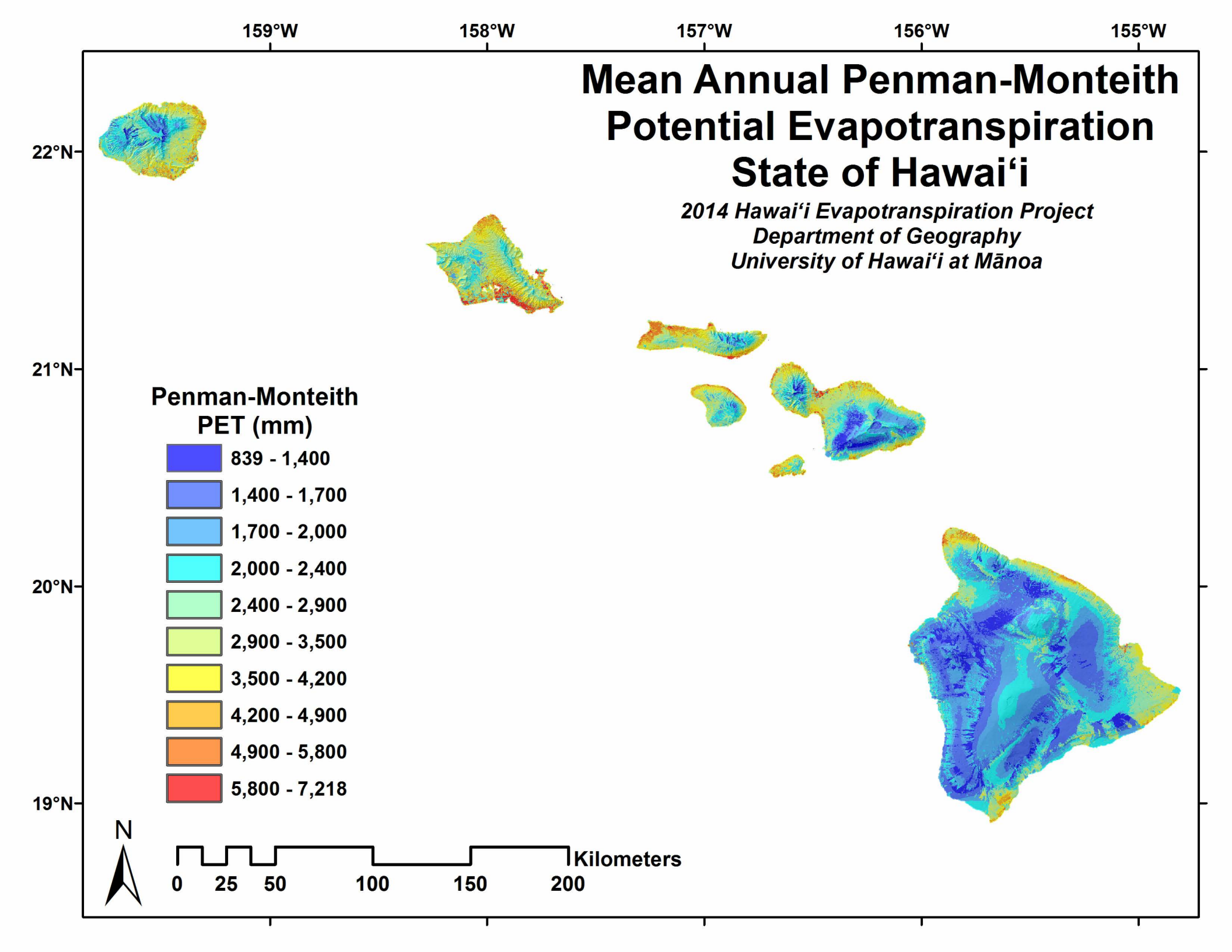
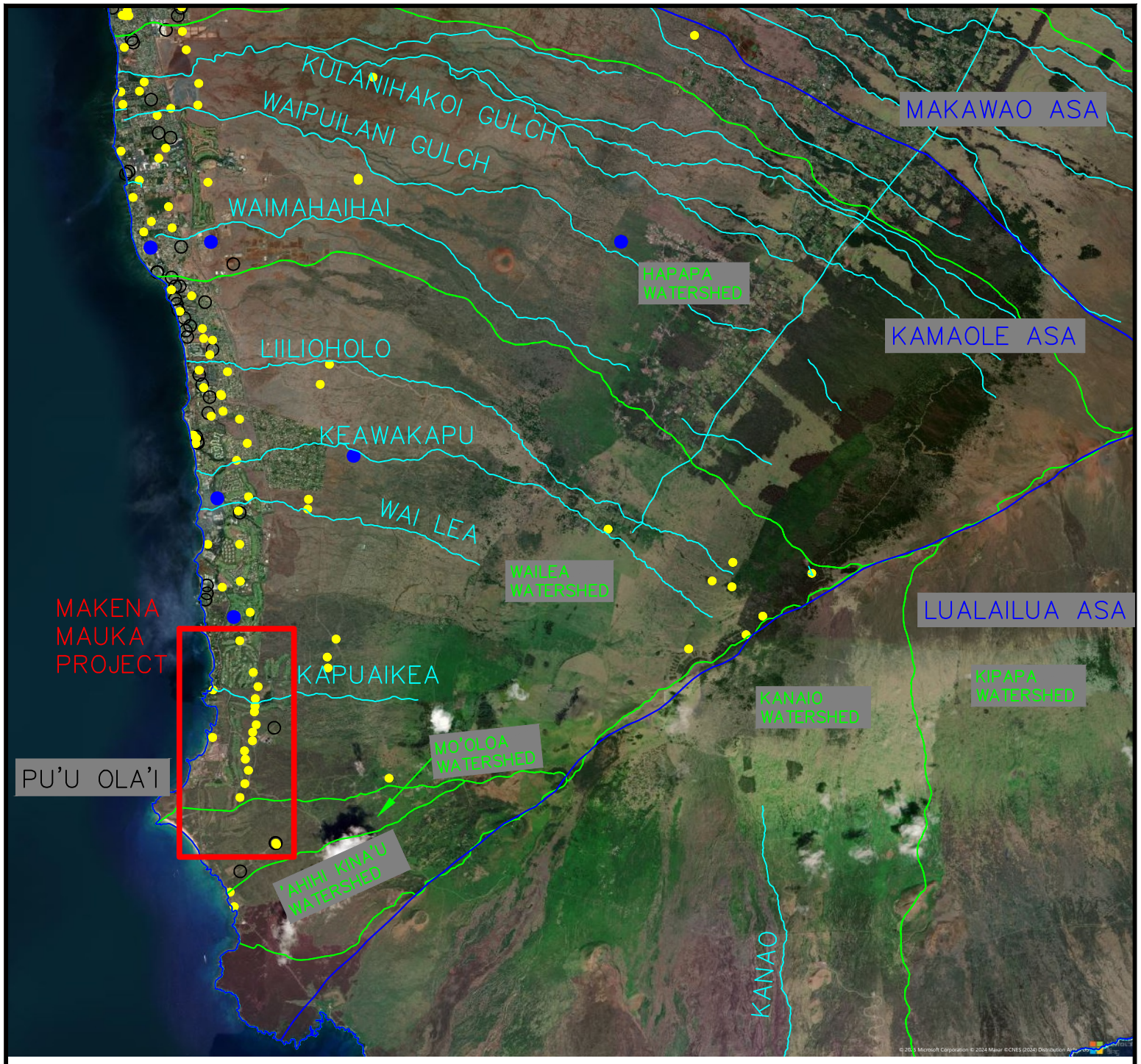
APPENDIX C


159°W
158°W
157°W
156°W
155°W
22°N
21°N
20°N
19°N
Mean Annual Evapotranspiration
State of Hawai‘i
2014 Hawai‘i Evapotranspiration Project
Department of Geography
University of Hawai‘i at Mānoa
Actual Evapotranspiration
(mm)
0 - 300
300 - 450
450 - 600
600 - 720
720 - 850
850 - 1,000
1,000 - 1,150
1,150 - 1,350
1,350 - 1,500
1,500 - 2,300
N
0 25 50 100 150 200
Kilometers


159°W
158°W
157°W
156°W
155°W
22°N
21°N
20°N
19°N
Mean Annual Penman-Monteith Potential Evapotranspiration State of Hawai'i
2014 Hawai'i Evapotranspiration Project
Department of Geography
University of Hawai'i at Mānoa
Penman-Monteith PET (mm)
839 - 1,400
1,400 - 1,700
1,700 - 2,000
2,000 - 2,400
2,400 - 2,900
2,900 - 3,500
3,500 - 4,200
4,200 - 4,900
4,900 - 5,800
5,800 - 7,218
N
0 25 50 100 150 200
Kilometers

APPENDIX D



LEGEND

- WATERSHED/SWHU BOUNDARY
- NON–PERENNIAL STREAM
- AQUIFER SYSTEM AREA (ASA) BOUNDARY
- ABANDONED WELL
- PRODUCTION WELL
- OBSERVATION WELL

9000' 0 9000' 9000'

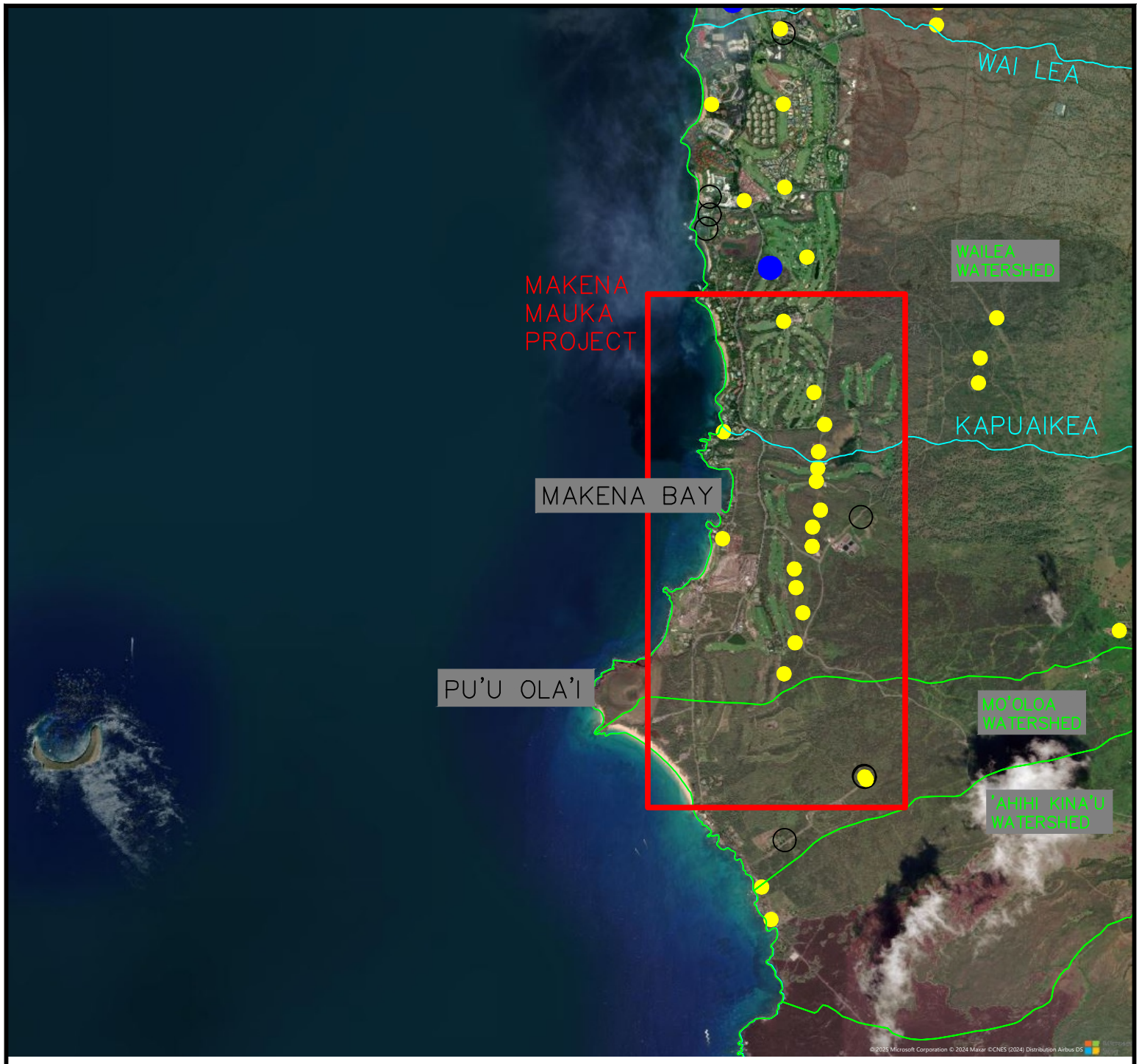
SCALE: 1" = 9000'

MAKENA MAUKA WATER RESOURCES REPORT

APPENDIX

WATER SOURCE SUMMARY

D



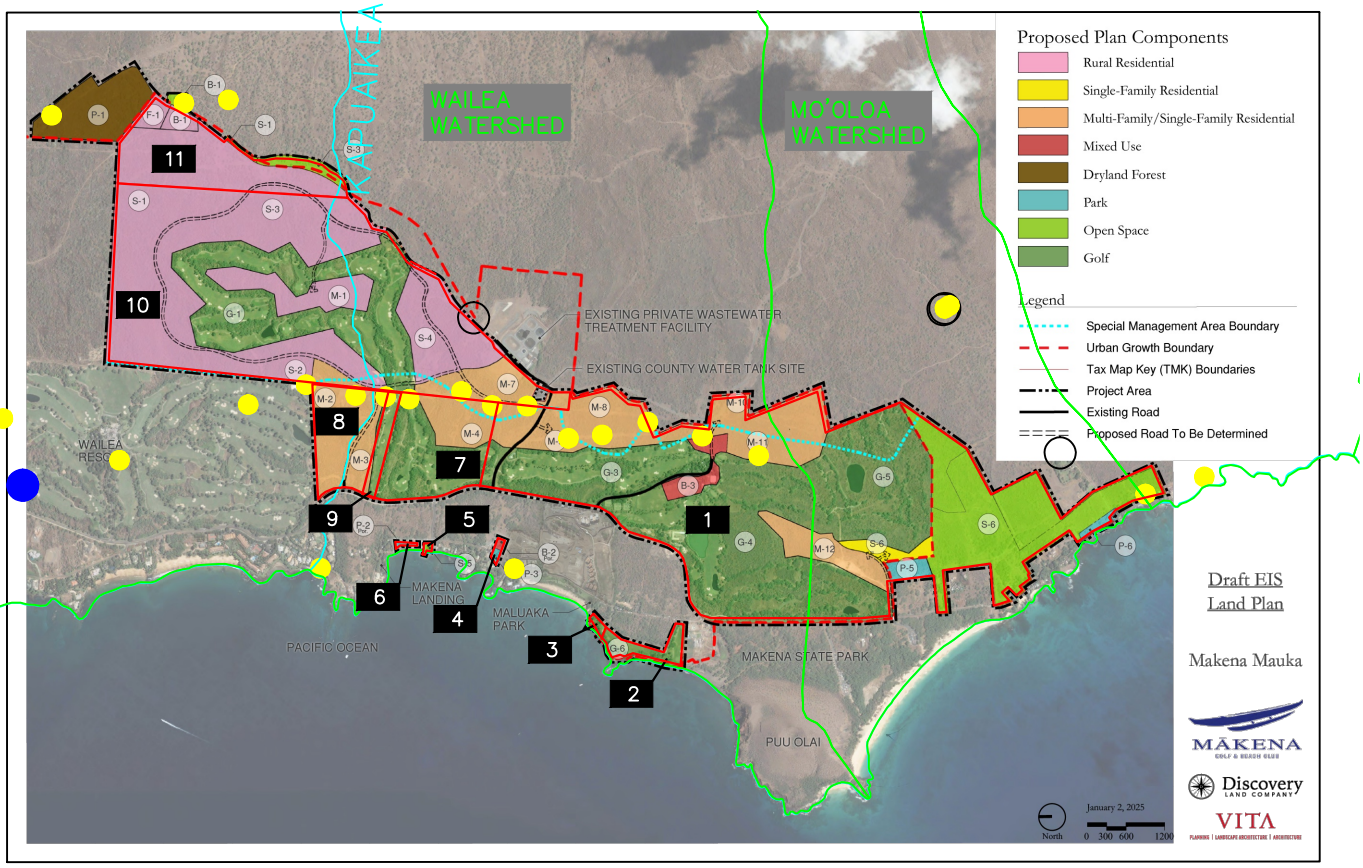
LEGEND

- WATERSHED/SWHU
- NON-PERENNIAL STREAM
- ABANDONED WELL
- PRODUCTION WELL
- OBSERVATION WELL

4000' 0 4000' 8000'

SCALE: 1" = 4000'

	MAKENA MAUKA WATER RESOURCES REPORT	APPENDIX
N	HYDROLOGICAL SUPPLY OVERVIEW	D



LEGEND

- WATERSHED/SWHU
- NON-PERENNIAL STREAM
- ABANDONED WELL
- PRODUCTION WELL
- OBSERVATION WELL

1	(2)2-1-005:108
2	(2)2-1-006:036
3	(2)2-1-006:057
4	(2)2-1-007:068
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4000' 0 4000' 8000'

SCALE: 1" = 4000'

MAKENA MAUKA WATER RESOURCES AREA

HYDROLOGICAL SUPPLY PROJECT AREA

APPENDIX

D

Wells Reviewed in Report

Island:	All
Well Owner:	ATC Makena Holdings, LLC
Well Reporter:	All
Land Owner:	All
Contractor:	All
Aquifer Sector:	All
Aquifer:	All
Aquifer Type:	Alluvial, Basal, Caprock, Deep Fresh Water, Dike, Perched, Not Specified
TMK:	All
PWS:	All
Water Quality:	Fresh;Brackish;Salt;other
Well Type:	Coring, Dug, Percussion, Rotary, Shaft, Tunnel, Not Specified
Well Use:	All

					Coordinates(NAD83)		Physical Data			Elevations in feet (msl)				Initial				Pump Test Result		
Well No	Well Name	Aquifer	Well Owner/Operator	Year Drilled	Latitude DD	Longitude DD	Type	Casing Dia in.	Total Depth ft.	Ground	Bottom Solid Casing	Bottom Perf Casing	Bottom of Hole	Static Head (ft MSL)	Cl (ppm)	Temp	Spec Cap (gpm/ft)	T ft²/d	Installed Capacity mgd	Use
Island: Maui																				
60304 Kamaole																				
6-3826-001	Seibu 2	60304	ATC Makena Holdings, LLC	1978	20.640472	-156.435756	PER	12	222	202	8	-20	-20	2.21					0.576	IRRGC
6-3826-002	Seibu 3	60304	ATC Makena Holdings, LLC	1978	20.642814	-156.435100	PER	12	220	199	9	-21	-21	2.08					0.576	IRRGC
6-3826-003	Seibu 4	60304	ATC Makena Holdings, LLC	1978	20.646233	-156.435811	PER	12	228	207	9	-21	-21	1.58	1,100		667		0.576	IRRGC
6-3826-004	Seibu 7	60304	ATC Makena Holdings, LLC	1985	20.638056	-156.436667	PER	12	195	173	128	45	-22	0.00	0		250		0.216	UNU
6-3826-005	Seibu 12	60304	ATC Makena Holdings, LLC	1989	20.644778	-156.435667	PER	12	231	203	10	-20	-28	2.57	1,900		875			UNU
6-3925-002	ATC Makena 3	60304	ATC Makena Holdings, LLC	2020	20.662671	-156.420371	ROT	14	740	703	7	-23	-35	2.77	260	68.1	623	100,782		MUNPR
6-3926-002	Makena 1	60304	ATC Makena Holdings, LLC	1977	20.655378	-156.433789	PER	12	211	190	11	-20	-21	1.75					0.576	IRRGC
6-3926-004	Seibu 5	60304	ATC Makena Holdings, LLC	1984	20.653072	-156.433969	PER	12	230	212	12	-18	-18	0.00					0.576	IRRGC
6-3926-005	Seibu 6	60304	ATC Makena Holdings, LLC	1984	20.654086	-156.433853	PER	12	224	203	9		-21		668		470	2,090,259	0.576	IRRGC
6-3926-006	Seibu 8	60304	ATC Makena Holdings, LLC	1988	20.650822	-156.433636	PER	12	263	241	8	-22	-22	1.00			300		0.432	IRRGC
6-3926-007	Seibu 9	60304	ATC Makena Holdings, LLC	1988	20.657500	-156.433278	PER	12	242	220	8	-22	-22	1.00			33		0.576	UNU
6-3926-008	Seibu 10	60304	ATC Makena Holdings, LLC	1988	20.647997	-156.434325	PER	12	290	268			-22	0.93			350			IRRGC
6-3926-009	Seibu 11	60304	ATC Makena Holdings, LLC	1988	20.649503	-156.434289	PER	12	278	257	9	-21	-21	2.00			357		0.288	IRRGC

Total Installed Pump Capacity in Aquifer in mgd: 4.968

Total Number of wells in Aquifer: 13

Total Number of wells on Island: 13

Total Number of Wells in the State: 13

Wells Reviewed in Report

Island:	Maui
Well Owner:	All
Well Reporter:	All
Land Owner:	All
Contractor:	All
Aquifer Sector:	All
Aquifer:	60304 Kamaole
Aquifer Type:	Alluvial, Basal, Caprock, Deep Fresh Water, Dike, Perched, Not Specified
TMK:	All
PWS:	All
Water Quality:	Fresh;Brackish;Salt;other
Well Type:	Coring, Dug, Percussion, Rotary, Shaft, Tunnel, Not Specified
Well Use:	All

					Coordinates(NAD83)		Physical Data			Elevations in feet (msl)				Initial				Pump Test Result		
Well No	Well Name	Aquifer	Well Owner/Operator	Year Drilled	Latitude DD	Longitude DD	Type	Casing Dia in.	Total Depth ft.	Ground	Bottom Solid Casing	Bottom Perf Casing	Bottom of Hole	Static Head (ft MSL)	Cl (ppm)	Temp	Spec Cap (gpm/ft)	T ft²/d	Installed Capacity mgd	Use
Island: Maui																				
60304 Kamaole																				
6-3725-001	Moomuku 1	60304	Olsen Trust LLC	2004	20.630080	-156.430060	ROT	6	280	263	4	-16	-16	2.10	600			100,000	0.432	ABNSLD
6-3725-002	Polena 1	60304	Evans Holdings, Inc.	2016	20.629801	-156.429867	ROT	10	275	262	12	-8	-8	1.95	769	72.6			0.180	MUNPR
6-3725-003	Polena 2	60304	Evans Holdings, Inc.	2016	20.630000	-156.430000	ROT	10	276	262	12	-8	-8	1.78	939	73.4	983	697,160		ABNSLD
6-3725-004	Polena 2A	60304	Evans Holdings, Inc.	2016	20.630000	-156.430000		10	275	262	7	-13	-13	1.78	810	73.2			0.180	IRRLA
6-3726-001	Kanahena	60304	Jacintho, Ronald R. Sr. Trust	1975	20.618889	-156.437778		4	31					0.00						UNU
6-3726-003	Millar 1	60304	Chester F. Millar	1985	20.625085	-156.436640		4	125	110			-15	1.00	16,000					ABN
6-3726-004	Kanahena-Erniss	60304	Lisa A. Dennis	1990	20.621426	-156.438544	DUG	48	19						4				0.014	IRRLA
6-3824-001	Berkowicz	60304	Rocavallo Estates - Condo Master	2005	20.641389	-156.408889	ROT	6	1,322	1,294	-8	-28	-28	5.16	160		24	600	0.065	MUNPR
6-3826-001	Seibu 2	60304	ATC Makena Holdings, LLC	1978	20.640472	-156.435756	PER	12	222	202	8	-20	-20	2.21					0.576	IRRGC
6-3826-002	Seibu 3	60304	ATC Makena Holdings, LLC	1978	20.642814	-156.435100	PER	12	220	199	9	-21	-21	2.08					0.576	IRRGC
6-3826-003	Seibu 4	60304	ATC Makena Holdings, LLC	1978	20.646233	-156.435811	PER	12	228	207	9	-21	-21	1.58	1,100		667		0.576	IRRGC
6-3826-004	Seibu 7	60304	ATC Makena Holdings, LLC	1985	20.638056	-156.436667	PER	12	195	173	128	45	-22	0.00	0		250		0.216	UNU
6-3826-005	Seibu 12	60304	ATC Makena Holdings, LLC	1989	20.644778	-156.435667	PER	12	231	203	10	-20	-28	2.57	1,900		875			UNU
6-3920-001	Waikaalu Spring	60304	Ulupalakua Ranch, Inc.	1942	20.666468	-156.342289	TUN			5,400				5,400.00						AGRLI
6-3921-001	Waihou Spring	60304	Ulupalakua Ranch, Inc.	1942	20.664000	-156.353000	TUN			4,750										AGRLI
6-3925-001	Makena Well 68	60304	Land Division Oahu, DLNR-LD	1964	20.650278	-156.430278	ROT	8	382	352	9	-11	-30	0.80	465		188			ABNLOS*
6-3925-002	ATC Makena 3	60304	ATC Makena Holdings, LLC	2020	20.662671	-156.420371	ROT	14	740	703	7	-23	-35	2.77	260	68.1	623	100,782		MUNPR
6-3926-001	Makena	60304	Samuel M. Garcia Jr. Trust	1972	20.648603	-156.441749	ROT	4	32						1,080					UNU
6-3926-002	Makena 1	60304	ATC Makena Holdings, LLC	1977	20.655378	-156.433789	PER	12	211	190	11	-20	-21	1.75					0.576	IRRGC

					Coordinates(NAD83)		Physical Data			Elevations in feet (msl)				Initial				Pump Test Result		
Well No	Well Name	Aquifer	Well Owner/Operator	Year Drilled	Latitude DD	Longitude DD	Type	Casing Dia in.	Total Depth ft.	Ground	Bottom Solid Casing	Bottom Perf Casing	Bottom of Hole	Static Head (ft MSL)	Cl (ppm)	Temp	Spec Cap (gpm/ft)	T ft²/d	Installed Capacity mgd	Use
6-3926-003	Wailea 8	60304	Wailea Golf LLC	1976	20.660000	-156.434167	PER	12	208	179	-1	-21	-29	1.57	666		27		0.504	IRRGC
6-3926-004	Seibu 5	60304	ATC Makena Holdings, LLC	1984	20.653072	-156.433969	PER	12	230	212	12	-18	-18	0.00					0.576	IRRGC
6-3926-005	Seibu 6	60304	ATC Makena Holdings, LLC	1984	20.654086	-156.433853	PER	12	224	203	9		-21		668		470	2,090,259	0.576	IRRGC
6-3926-006	Seibu 8	60304	ATC Makena Holdings, LLC	1988	20.650822	-156.433636	PER	12	263	241	8	-22	-22	1.00			300		0.432	IRRGC
6-3926-007	Seibu 9	60304	ATC Makena Holdings, LLC	1988	20.657500	-156.433278	PER	12	242	220	8	-22	-22	1.00			33		0.576	UNU
6-3926-008	Seibu 10	60304	ATC Makena Holdings, LLC	1988	20.647997	-156.434325	PER	12	290	268			-22	0.93			350			IRRGC
6-3926-009	Seibu 11	60304	ATC Makena Holdings, LLC	1988	20.649503	-156.434289	PER	12	278	257	9	-21	-21	2.00			357		0.288	IRRGC
6-3926-011	Makena Surf	60304	Makena Surf AOAO	2002	20.656944	-156.441667	ROT	6	55	41	-4	-14	-14	0.93	680			45,900	0.331	IRRLA
6-4019-001	Polipoli Tunnel	60304	Ulupalakua Ranch, Inc.		20.677222	-156.330000	TUN			6,200										UNU
6-4020-001	Waikaukane Tunnel	60304	Ulupalakua Ranch, Inc.	1934	20.669722	-156.339167	TUN			5,750										AGRLI
6-4020-002	Cornwall Tunnel	60304	Ulupalakua Ranch, Inc.		20.674877	-156.344894	TUN			4,850				4,850.00						AGRLI
6-4020-003	Morton Tunnel	60304	Ulupalakua Ranch, Inc.		20.679167	-156.344722	TUN			4,850										AGRLI
6-4021-001	Waikaahi Tunnel	60304	Ulupalakua Ranch, Inc.		20.675916	-156.348602	TUN			4,600				4,600.00						AGRLI
6-4026-001	TMK 2-1-11-3	60304	Polo Beachfront	1950	20.673889	-156.442778		8	24					10.80						ABNLOS*
6-4026-002	Tmk 2-1-11-1	60304	Polo Beachfront	1950	20.675278	-156.442778		8	32											ABNLOS*
6-4026-003	Makena	60304	Stephen A. Finn 2001 Trust	1951	20.672778	-156.443056		8	32											ABNLOS
6-4026-004	Wailea 4	60304	Wailea Golf LLC	1972	20.676009	-156.436553	ROT	12	210	179	0	-21	-31	1.04	363		32		1.008	IRRGC
6-4026-005	Wailea 6	60304	Wailea Golf LLC	1975	20.669722	-156.437778	PER	12	189	158	8	-12	-31	2.00	600		20		0.259	OBS
6-4026-006	Wailea 7	60304	Wailea Golf LLC	1975	20.665556	-156.436667	PER	12	204	184	5	-15	-20	2.00	620		350		1.008	IRRGC
6-4026-007	Wailea 6A	60304	Wailea Golf LLC	1994	20.670556	-156.434722	ROT	12	272	252	0	-20	-20	0.50	460		30		0.540	IRRGC
6-4026-013	Kea Lani Irr	60304	Fairmont Kea Lani, The	2002	20.674970	-156.439914	ROT	6	94	83	-2	-11	-11	0.90	520			84,634	0.331	UNU
6-4122-003	OW Ranch LLC	60304	Oprah's Farm LLC	2021	20.685051	-156.367980	ROT	9	3,082	3,000	0	-81	-81	9.58	100	71.0				AGRCP
6-4125-001	Wailea 670 1	60304	Kauapea Papaya, LLC	1991	20.690377	-156.423829	ROT	12	559	522	-27	-37	-37	2.80			500		0.720	UNU
6-4125-002	Wailea 670 2	60304	Kauapea Papaya, LLC	1991	20.688655	-156.423961	ROT	12	550	523	-6	-26	-27	3.70			210		0.720	UNU
6-4126-001	Wailea 1	60304	Wailea Golf LLC	1950	20.690556	-156.440833	PER	10	90	85		-5	-5	7.00	590				0.036	OBS
6-4126-002	Wailea 2	60304	Wailea Golf LLC	1969	20.688029	-156.436636	PER	12	198	181	3	-17	-17	2.00	490		620		1.008	ABNSLD
6-4126-003	Wailea 3	60304	Wailea Golf LLC	1969	20.682500	-156.436667	PER	12	174	152	-1	-21	-22	1.00	555		383		0.907	IRRGC
6-4126-004	Grand Wailea Salt	60304	Stephen J. Ast (Grand Wailea Resort Inc.)	1991	20.682487	-156.442607		4	80										0.360	AGRAQ
6-4126-005	Wailea Ike Irr	60304	Toni Fowler (Grand Champion Villas)	2004	20.690833	-156.435000	ROT	6	206	189	-2	-17	-17	1.77	700			10,056	0.216	IRRLA
6-4126-006	Wailea 2A	60304	Wailea Golf LLC	2018	20.688361	-156.436889	ROT	14	195	179	5	-15	-15	2.60	885	69.6	646	360,959	0.576	IRRGC
6-4225-001	Maui Meadows	60304	County of Maui	2006	20.697979	-156.415391	ROT	16	802	763	-17	-39	-39	0.29	146		25			OBSWL

					Coordinates(NAD83)		Physical Data			Elevations in feet (msl)				Initial				Pump Test Result		
Well No	Well Name	Aquifer	Well Owner/Operator	Year Drilled	Latitude DD	Longitude DD	Type	Casing Dia in.	Total Depth ft.	Ground	Bottom Solid Casing	Bottom Perf Casing	Bottom of Hole	Static Head (ft MSL)	Cl (ppm)	Temp	Spec Cap (gpm/ft)	T ft²/d	Installed Capacity mgd	Use
6-4225-002	Wailea 670 No. 1	60304	Honuaula Partners, LLC	2007	20.710549	-156.421590	ROT	12	581	545	7	-33	-36	2.22	240		26	27,000		UNU
6-4225-003	Wailea 670 No. 2	60304	Honuaula Partners, LLC	2007	20.714042	-156.419880	ROT	12	604	573	9	-31	-31	3.15	210					UNU
6-4226-001	Tmk 2-1-10-07	60304	Hahn Family Trust	1946	20.700278	-156.444444			41											ABNLOS*
6-4226-002	Granito	60304	PEM Trust	1946	20.700556	-156.444444		5	45											ABN
6-4226-003	Tmk 2-1-10-04	60304	William D. & Marjarie A. Pabst Trust	1946	20.701111	-156.444722			31											IRR
6-4226-004	2-1-10-20	60304	Jeremy Kimura	1946	20.701389	-156.444722			30											ABNSLD
6-4226-005	Tmk 2-1-10-01	60304	Paylor Developments	1949	20.701667	-156.445278		8	22											UNU
6-4226-006	Tmk 3-9-04-98	60304	Maui Parkshore	1949	20.712222	-156.444167		6	59											ABNLOS*
6-4226-007	Tmk 3-9-04-75	60304	Kilohana Waena Corp.	1951	20.705000	-156.441944		8	65											UNU
6-4226-008	TMK 3-9-04-78	60304	S. Kiyan	1951	20.705556	-156.442500		8	75											ABNSLD
6-4226-009	Maui Hill	60304	Maui Hill AOAO	1951	20.708333	-156.442222		8	114											ABNLOS*
6-4226-010	Tmk 3-9-04-84	60304	Hale Kamaole Homeowners Co.	1951	20.710556	-156.443611		8	63											ABNLOS*
6-4226-011	Tmk 3-9-04-125	60304	Norman Mattson	1956	20.712778	-156.438889		10	157											IRR
6-4226-012	Wailea 5	60304	Wailea Golf LLC	1972	20.697222	-156.437222	ROT	12	202	179	0	-21	-23	1.04	1,050		444		0.360	IRRGC
6-4226-013	Wailea 9	60304	Wailea Golf LLC	1989	20.704444	-156.436667	PER	12	222	202	0	-20	-20	1.40			51		0.576	IRRGC
6-4226-014	Wailea 10	60304	Wailea Golf LLC	1990	20.701944	-156.436111	PER	12	248	234	6	-14	-14		600		219		1.008	IRRGC
6-4226-015	Hale Kamaole	60304	Hale Kamaole Homeowners Co.	1999	20.710000	-156.443333	ROT	6	105	77	-8	-28	-28	3.72	600		400	45,200	0.180	IRRLA
6-4226-016	Maui Kamaole AOAO	60304	Maui Kamaole Enterprises III	2001	20.708801	-156.440170	ROT	6	155	129	4	-16	-26	0.23	560			303,258	0.216	IRRLA
6-4226-017	Kamaole Sands	60304	AOAO Kamaole Sands	2002	20.713056	-156.444167	ROT	6	59	52	2	-6	-6	2.20	500			35,994	0.216	IRRLA
6-4226-018	Maui Hill AOAO	60304	Maui Hill AOAO	2003	20.708611	-156.440000	ROT	6	147	134	-3	-13	-13	1.18	320			532,012	0.216	IRRLA
6-4226-019	Kilohana Waena	60304	Kilohana Waena Corp.	2006	20.705833	-156.439722	ROT	6	135	117	3	-17	-17	2.10	600	71.0			0.072	IRRLA
6-4226-020	Keawakapu	60304	Jacqueline T Tavares		20.700186	-156.444842													0.144	UNU
6-4326-001	Tmk 3-9-20-26	60304	County of Maui	1945	20.722222	-156.446944		6	28											ABNLOS*
6-4326-002	Tmk 3-9-20-17	60304	Dragon Pacific Investment Inc.	1946	20.720000	-156.446667		8	23								266			ABNLOS*
6-4326-003	Tmk 3-9-20-14	60304	Rose Royce Trust	1947	20.718889	-156.446389		8	34											ABNLOS*
6-4326-004	Tmk 3-9-19-02	60304	Ulrich R. Klinkhammer	1948	20.716667	-156.441667		7	103											ABNLOS*
6-4326-005	Tmk 3-9-20-20	60304	Ke Alii Villas LLC	1951	20.720833	-156.445833		8	47											ABNLOS*
6-4326-006	Tmk 3-9-18-09	60304	Dan Charles Phillips	1959	20.725000	-156.443056		8	110	75	-19		-35							ABNLOS*
6-4326-007	Kamaole-Bosa	60304	Maui Banyan	1990	20.715770	-156.442173	ROT	6	84	64	0	-20	-20	2.90	60					UNU

					Coordinates(NAD83)		Physical Data			Elevations in feet (msl)				Initial				Pump Test Result		
Well No	Well Name	Aquifer	Well Owner/Operator	Year Drilled	Latitude DD	Longitude DD	Type	Casing Dia in.	Total Depth ft.	Ground	Bottom Solid Casing	Bottom Perf Casing	Bottom of Hole	Static Head (ft MSL)	Cl (ppm)	Temp	Spec Cap (gpm/ft)	T ft²/d	Installed Capacity mgd	Use
6-4326-009	Kihei-Maui Vista	60304	Maui Vista AOAO	2001	20.726111	-156.445556	ROT	6	95	64	-7	-27	-31	1.58	660			85,416	0.288	IRRLA
6-4326-011	Ocean Villas	60304	Ke Alii Villas LLC	2004	20.720362	-156.443550	ROT	6	100	83	3	-17	-17	1.91	680		57	2,500	0.331	IRRLA
6-4326-012	Moana Estates	60304	Ke Alii Villas LLC	2004	20.718333	-156.441667	ROT	6	95	80	5	-15	-15	1.92	680		71		0.216	IRRLA
6-4326-013	Aloha Village	60304	Nokaoi Development LP	2005	20.718611	-156.443333	ROT	6	80	66	4	-14	-14	1.56	700		67		0.180	UNU
6-4326-014	Wailea Inn	60304	Wailea Inn LLC	2019	20.727172	-156.449308	ROT	8	25	12	3	-7	-12	-11.00	109				0.065	IRR
6-4327-001	TMK 3-9-16-25	60304	Hale Kanani Condominium - Condo Master	1947	20.727778	-156.447778		8	38											ABNLOS*
6-4327-002	TMK 3-9-17-37	60304	Ranjit Sivaprakasam	1947	20.729341	-156.449276		10	31											ABN
6-4327-003	TMK 3-9-05-51	60304	LDB Trust	1949	20.723378	-156.447769		8	26											UNU
6-4327-004	TMK 3-9-05-25	60304	2260 South Kihei Road Condo	1949	20.723611	-156.448056		8	22											ABNLOS*
6-4327-005	TMK 3-9-05-22	60304	Hansen Ohana Security LLC	1949	20.724722	-156.448333		8	38											ABNLOS*
6-4327-006	TMK 3-9-16-03	60304	Hale Kanani Condominium - Condo Master	1967	20.727778	-156.448611			45											ABNLOS*
6-4327-007	Kihei-Akahi	60304	Kihei Akahi Condominium	2000	20.725556	-156.448611	ROT	6	80	56	5		-24	1.12	640		727	860,006	0.216	ABNLOS*
6-4327-008	Kalama Beach A1	60304	Pacific Islands Water Science Center, USGS, U.S. Geological Survey	2009	20.730278	-156.451944	ROT	2	16						2,900					ABNLOS*
6-4327-009	Kalama Beach A2	60304	Pacific Islands Water Science Center, USGS, U.S. Geological Survey	2009	20.730278	-156.451944	ROT	2	45						2,500					ABNLOS*
6-4327-010	Kalama Beach A3	60304	Pacific Islands Water Science Center, USGS, U.S. Geological Survey	2009	20.730278	-156.451944	ROT	2	70						17,900					ABNLOS*
6-4422-001	Waiohuli	60304	Pacific Islands Water Science Center, USGS, U.S. Geological Survey	2001	20.735480	-156.365452	ROT	4	1,940	1,864	34	-56	-72	5.58	66					OBSWL
6-4424-001	Keokea Highlands 2	60304	Doyle Betsill (Maui Highlands Properties, LLC) 1	2005	20.746350	-156.414440	ROT	8	577	553	-4	-24	-24	2.60	320	66.4	94	179,588	0.432	MUNPR
6-4425-001	Keokea Highlands	60304	Doyle Betsill (Maui Highlands Properties, LLC) 1	2004	20.746683	-156.414448	ROT	6	570	551	1	-19	-19	2.76	300			17,033	0.432	MUNPR
6-4426-001	Kihei Inject TH	60304	County of Maui, Department of Environmental Management, Solid Waste Division	1972	20.735556	-156.441944	ROT	2	203											OBSOTH

					Coordinates(NAD83)		Physical Data			Elevations in feet (msl)				Initial				Pump Test Result		
Well No	Well Name	Aquifer	Well Owner/Operator	Year Drilled	Latitude DD	Longitude DD	Type	Casing Dia in.	Total Depth ft.	Ground	Bottom Solid Casing	Bottom Perf Casing	Bottom of Hole	Static Head (ft MSL)	Cl (ppm)	Temp	Spec Cap (gpm/ft)	T ft²/d	Installed Capacity mgd	Use
6-4426-002	Kihei Injection	60304	County of Maui, Department of Environmental Management, Solid Waste Division	1974	20.731667	-156.437778	PER	18	230	109	-51		-121	4.00			524			ABNLOS*
6-4426-003	Kihei-Maui R&T	60304	Maui Research & Technology Partners, LLC	1990	20.746047	-156.442494	ROT	8	157	124	-3	-33	-33	1.87	369					UNU
6-4427-001	TMK 3-9-05-52	60304	County of Maui Dept. of Parks and Recreation, Central Maui		20.734279	-156.453722														IRR
6-4427-002	TMK 3-9-02-8	60304	Laura Marie Gleason Trust	1945	20.738056	-156.449167		8	30											UNU
6-4427-003	Medo	60304	Giampaolo Paul Boschetti	1948	20.741766	-156.449839	DUG	10	22											DOM
6-4427-004	TMK 3-9-11-38	60304	Nathan C. S. Kim	1949	20.737334	-156.454469		8	24											UNU
6-4427-005	TMK 3-9-02-02	60304	County of Maui	1950	20.734722	-156.447500		8	82											ABNLOS*
6-4427-006	Kihei Fire B1	60304	Pacific Islands Water Science Center, USGS, U.S. Geological Survey	2009	20.734583	-156.453194	ROT	2	16						2,100					OBS
6-4427-007	Kihei Fire B2	60304	Pacific Islands Water Science Center, USGS, U.S. Geological Survey	2009	20.734556	-156.453222	ROT	2	40						1,600					OBS
6-4427-008	Kihei Fire B3	60304	Pacific Islands Water Science Center, USGS, U.S. Geological Survey	2009	20.734556	-156.453194	ROT	2	70						8,000					OBS
6-4427-009	Kihei Baptist Chapel	60304	Kihei Baptist Chapel	1978	20.739167	-156.453056	DUG	20	15										0.021	IRRLA
6-4427-010	Burdick	60304	Charles & WF Cronce		20.743400	-156.456460	DUG													IRRLA
6-4524-002	Kaonoulu 1	60304	Kaonoulu Ranch, LLLP	2010	20.764444	-156.411667	ROT	14	589	524	-30	-60	-62	3.66	262					MUNPR
6-4526-002	Kihei HS-1	60304	Hawaii State Department of Education, DOE	2016	20.763394	-156.444175	ROT	12	136	106	9	-11	-27	3.08	330	70.0	346	2,604,923	0.432	IRRSC
6-4526-003	KHS-2	60304	Hawaii State Department of Education, DOE	2016	20.759600	-156.444347	ROT	13	112	92	5	-15	-17	3.43	300	69.5	123	289,352	0.360	IRRSC
6-4527-001	TMK 3-9-02-36	60304	Burchell P. Smith	1945	20.754722	-156.451667		6	30								125		0.170	ABNLOS*
6-4527-002	Tmk 3-9-02-32	60304	Yees Orchard	1946	20.752034	-156.450349		8	35											AGRCP
6-4527-003	Tmk 3-9-01-02	60304	Maui Sunset - Condo Master	1947	20.775380	-156.458416		8	20											IRRLA
6-4527-004	Tmk 3-9-08	60304	County of Maui	1948	20.747936	-156.457255		7	47											ABNLOS*
6-4527-005	Tmk 3-9-08	60304	County of Maui	1948	20.747500	-156.457778			70											ABNLOS*
6-4527-006	Tmk 3-9-01-9	60304	Pascal Gendron-Hardy	1948	20.760556	-156.453056		6	28											ABNLOS*
6-4527-007	Tmk 3-9-23-30	60304	Karen S. Aguinaldo Trust	1949	20.757778	-156.451944		8	42											UNU

					Coordinates(NAD83)		Physical Data			Elevations in feet (msl)				Initial				Pump Test Result		
Well No	Well Name	Aquifer	Well Owner/Operator	Year Drilled	Latitude DD	Longitude DD	Type	Casing Dia in.	Total Depth ft.	Ground	Bottom Solid Casing	Bottom Perf Casing	Bottom of Hole	Static Head (ft MSL)	Cl (ppm)	Temp	Spec Cap (gpm/ft)	T ft²/d	Installed Capacity mgd	Use
6-4527-008	Kihei-Piilani	60304	Piilani Villages Homeowners Association	1990	20.759022	-156.449391	ROT	10	71	41	3	-17	-30	0.75	0		83		0.057	IRRLA
6-4527-010	Kihei-Koa	60304	Koa Resorts Association	1992	20.761930	-156.458710	DUG	24	14	7	0	-5	-7		335		11		0.043	UNU
6-4527-012	Waiohuli 1	60304	County of Maui	1989	20.753889	-156.449444	DUG	60	20											ABNSLD
6-4527-014	Kauhale Makai	60304	Kauhale Makai	2001	20.759722	-156.458333	ROT	6	86	9	-48		-77	1.69	2,518		17	4,552	0.216	IRRPA
6-4527-016	St. Theresa Church	60304	St. Theresa Church	2007	20.746389	-156.455278	ROT	6	45	8	-17	-37	-37	4.00	300	71.0			0.086	IRRLA
6-4527-017	Kihei	60304	Krausz Kihei Two, LLC		20.750278	-156.451667	DUG	66	11											UNU
6-4527-018	Kaonoulu 5	60304	Charles & Valerie Kulesa Trust	2007	20.763657	-156.454346	ROT	6	50	18	-2	-32	-32	3.14	184				0.086	UNU
6-4527-019	Rixey	60304	George Allen Rixey Trust	2010	20.751525	-156.458694	DUG	30	12	8	0	-3	-4	1.00	160				0.058	DOM
6-4527-020	Haleakala Gardens Irrigation	60304	Haleakala Gardens, AOAO	2012	20.762039	-156.455236		6	60	11	-23		-48	2.65	120	71.0	100		0.130	IRR
6-4621-001	Kula 1800 No. 1	60304	RIC (Kula Ranch) LLC	2007	20.771667	-156.351667	ROT	16	1,832	1,760	8	-72	-72	5.19	50		196	170,000		UNU
6-4626-002	Kaonoulu Irr 1	60304	Honuaula Partners, LLC	2012	20.769303	-156.446497	ROT	10	133	118	-5	-15	-15	1.12	180				0.216	UNU
6-4627-001	Tmk 3-9-01-24	60304	Kenji Yamada Trust		20.776111	-156.457500														OTH
6-4627-002	Tmk 3-9-06-08	60304	Harry Vant Groenewout Trust	1946	20.778295	-156.460401		8	20								89		0.119	DOM
6-4627-003	Tmk 3-9-01-54	60304	Southpoint at Waiakoa PH	1947	20.771111	-156.456667		10	29											ABNLOS*
6-4627-004	Tmk 3-9-06-07	60304	Michael John Poulter	1947	20.777762	-156.460167		10	18										0.058	DOM
6-4627-005	Tmk 3-9-06-09	60304	Herman A. Schwarz Trust	1947	20.778626	-156.460485		10												IRRLA
6-4627-006	Tmk 3-9-06-13	60304	Hawaii Conference Foundation	1947	20.867475	-156.482674		6	23											UNU
6-4627-008	Tmk 3-9-01-33	60304	Kihei Commercial Condominium	1948	20.772778	-156.450278		6	116											ABNLOS*
6-4627-009	Tmk 3-9-01-50	60304	Archie Caballero Domingo	1948	20.778056	-156.458611		4	35											ABN
6-4627-010	Tmk 3-9-06-06	60304	LILI Kai Limited Partnership	1948	20.776667	-156.460278		7	19											ABNLOS*
6-4627-011	Tmk 3-9-01-99	60304	Southpoint at Waiakoa PH II	1949	20.770556	-156.456389		8	19											ABNLOS*
6-4627-012	Tmk 3-9-15-12	60304	Maui United Pentecostal Church	1950	20.775284	-156.457204		8	31											IRRLA
6-4627-013	Tmk 3-9-15-14	60304	Aurelia Bosque	1950	20.775278	-156.457778		8	29	20	9		-9	3.10						IRR
6-4627-014	Tmk 3-9-01-34	60304	Christopher Hayes (C. Hayes Excavation)	1969	20.772526	-156.447217	ROT		200	130			-70							AGRCP
6-4627-015	Tmk 3-9-26-43	60304	Douglals C. Baker	1969	20.775278	-156.448056	ROT	4	110											ABNLOS*
6-4627-016	Tmk 3-9-26-67	60304	Bruce M Sandler Trust	1969	20.776667	-156.447500	ROT	4	161											ABNLOS*
6-4627-017	Tmk 3-9-26-66	60304	Clyde Aschoff	1969	20.776825	-156.447351	ROT	4	120											DOM

					Coordinates(NAD83)		Physical Data			Elevations in feet (msl)				Initial				Pump Test Result		
Well No	Well Name	Aquifer	Well Owner/Operator	Year Drilled	Latitude DD	Longitude DD	Type	Casing Dia in.	Total Depth ft.	Ground	Bottom Solid Casing	Bottom Perf Casing	Bottom of Hole	Static Head (ft MSL)	Cl (ppm)	Temp	Spec Cap (gpm/ft)	T ft²/d	Installed Capacity mgd	Use
6-4627-019	Maui Lu	60304	Maui Bay Villas	1956	20.769722	-156.458056	DUG													IRRLA

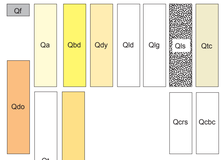
Total Installed Pump Capacity in Aquifer in mgd: **21.563**

Total Number of wells in Aquifer: **148**

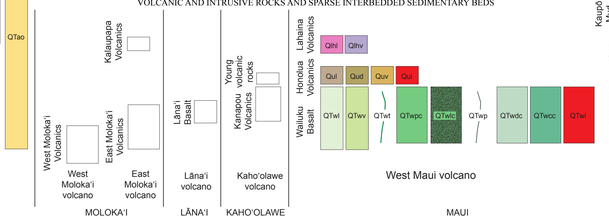
APPENDIX E

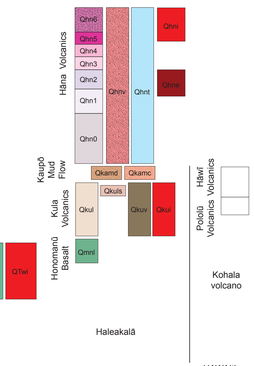
OPEN-FILE REPORT 2007-1089
SHEET 7 of 8
Pamphlet accompanies map

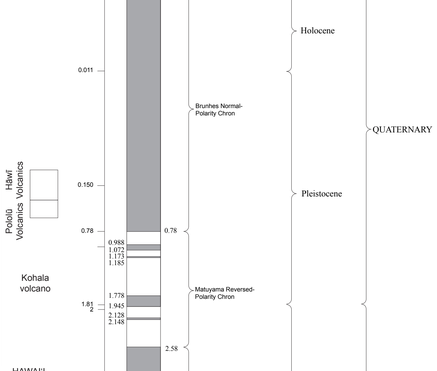
SURFICIAL DEPOSITS COMMON TO SEVERAL OF THE ISLANDS



VOLCANIC AND INTRUSIVE ROCKS AND SPARSE INTERBEDDED SEDIMENTARY BEDS







Geologic linework in Universal Transverse Mercator projection, North American datum 1983, zone 4

Topographic base and bounding latitude-longitude ticks from Defense Mapping Agency, Kipahulu Valley, Makawao, Waiakoa, and Wailuku (1989), 1:50,000

Transverse Mercator projection based on GRS 1980 spheroid, North American datum 1983

Grid on map from UTM zone 4, North American datum 1983

Base, intended for visual reference only, is fitted to GIS-based coastline by inspection

Geology from Stearns and Macdonald (1942), Macdonald (1978), and D.R. Sherrod, 1997-2003. Compiled by D.R. Sherrod, 2004

INDEX FOR 1:50,000-SCALE DEFENSE MAPPING AGENCY SHEETS

LIST OF MAP UNIT ON SHEET 7 (THIS MAP)

See explanatory pamphlet for complete descriptions

SURFICIAL DEPOSITS COMMON TO SEVERAL OF THE ISLANDS

Qf **Fill (Holocene)**
Qa **Alluvium (Holocene)**
Qbd **Beach deposits (Holocene)**
Qdy **Younger dune deposits (Holocene)**
Qls **Landslide deposits (Holocene)**
Qtc **Talus and colluvium (Holocene)**
Qdo **Older dune deposits (Holocene and Pleistocene)**
Qcbc **Calcareous breccia and conglomerate (Pleistocene)**
QTao **Older alluvium (Pleistocene and Pliocene)**

VOLCANIC AND INTRUSIVE ROCKS ON THE ISLAND OF MAUI

Hāna Volcanics (Holocene and Pleistocene)—Divided into:

Lava flows (Holocene and Pleistocene)—Divided into:

	Lava flows	Age, years
Qhn6	Qhn6	0 - 1500
Qhn5	Qhn5	1500 - 3000
Qhn4	Qhn4	3000 - 5000
Qhn3	Qhn3	5000 - 13,000
Qhn2	Qhn2	13,000 - 30,000
Qhn1	Qhn1	30,000 - 50,000
Qhn0	Qhn0	50,000 - 140,000

Qhnv **Vent deposits (Holocene and Pleistocene)**
Qhnt **Tephra deposits (Holocene and Pleistocene)**
Qhni **Intrusive rocks (Holocene and Pleistocene)**
Qhne **Explosion crater deposits (Pleistocene)**
Qkamd **Kaupō Mud Flow (Pleistocene)**—Mapped separately is:
Qkamc **Conglomerate**

Kula Volcanics (Pleistocene)—Divided into:

Qkul **Lava flows**—Mapped separately is:
Qkuls **Summit ankaramite**
Qkuv **Vent deposits**
Qkui **Intrusive rocks**
Qmnl **Honomanū Basalt (Pleistocene)**

Lahaina Volcanics (Pleistocene)—Divided into:

Qlhl **Lava flows**
Qlhv **Vent deposits**

Honolua Volcanics (Pleistocene)—Divided into:

Qul **Lava flows**
Qud **Domes**
Quv **Vent deposits**
Qui **Intrusive rocks**

Wailuku Basalt (Pleistocene and Pliocene(?))—Divided into:

QTwl **Lava flows**
QTwv **Vent deposits**
QTwt **Tuff**
QTwpc **Pit crater deposits**
QTwlc **Lava cone**
QTwp **Phreatic explosion debris**
QTwdc **Dike complex**
QTwcc **Caldera complex**
QTwi **Intrusive rocks**

—— **Contact—Approximately located**
Fault—Approximately located; dotted where concealed

Geologic Map of the State of Hawai'i, Sheet 7—Island of Maui

By

David R. Sherrod, John M. Sinton, Sarah E. Watkins, and Kelly M. Brunt

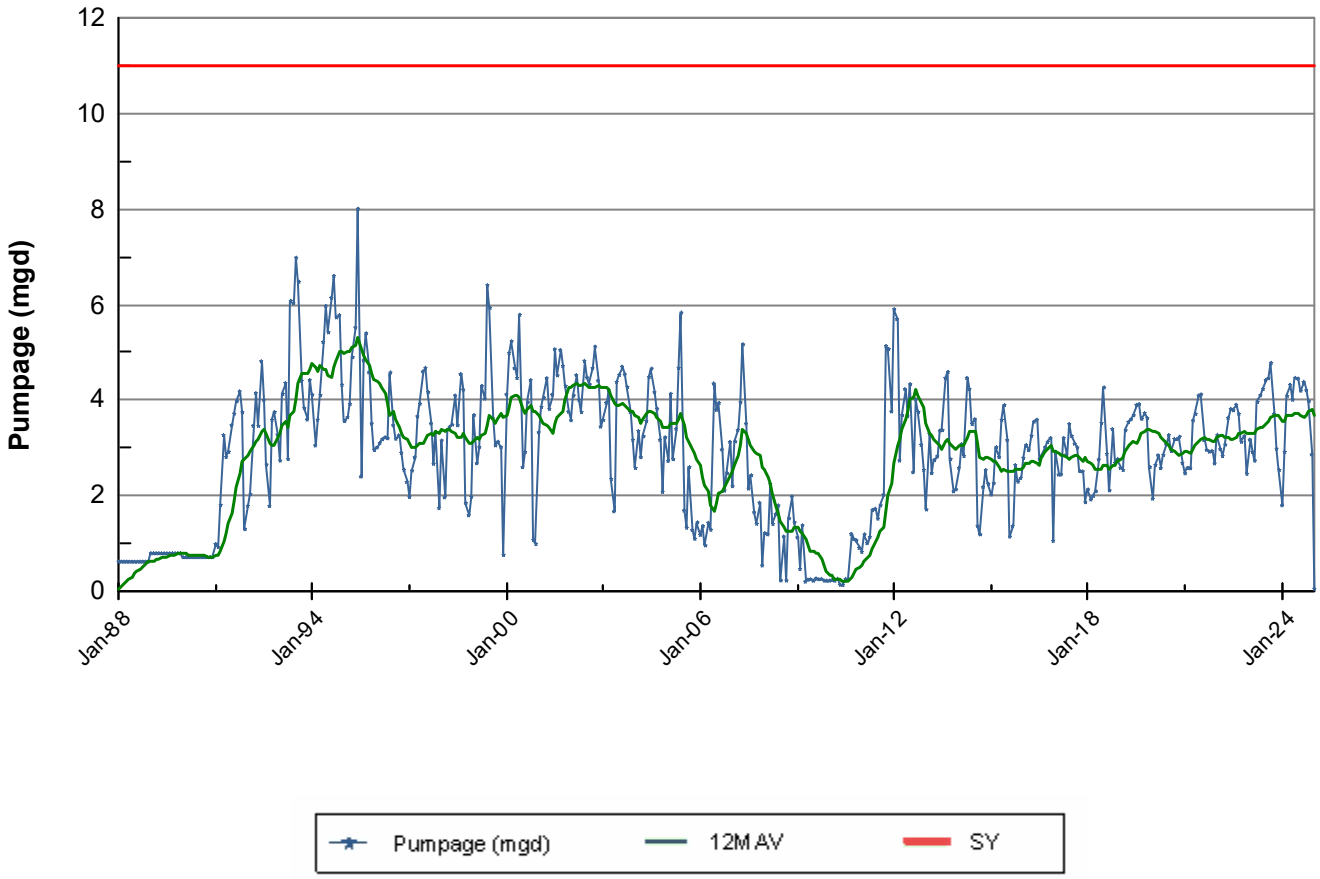
2007

Available on World Wide Web at http://pubs.usgs.gov/of/2007/1089/

APPENDIX F

Monthly Pumpage Chart

12 Month Moving Average



Report Parameters

Date:	01/01/1988 - 01/13/2025
Island:	Maui
Well Owner:	All
Well Reporter:	All
Well # Prefix:	All
Aquifer Sector:	Central
Aquifer:	60304 Kamaole
Water Quality:	Fresh (0-250 ppm), Brackish (251-16,999 ppm), Not Specified
Potable/Non-Potable:	All
TMK:	All
PWS:	All
Aquifer Type:	Alluvial, Basal, Caprock, Deep Fresh Water, Dike, Perched, Not
Pump Capacity:	Specified
Well Use:	All

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
January 1988	0.619	0.052	11.000
February 1988	0.619	0.103	11.000
March 1988	0.619	0.155	11.000
April 1988	0.619	0.206	11.000
May 1988	0.618	0.258	11.000
June 1988	0.618	0.309	11.000
July 1988	0.618	0.361	11.000
August 1988	0.618	0.412	11.000
September 1988	0.619	0.464	11.000
October 1988	0.619	0.515	11.000
November 1988	0.619	0.567	11.000
December 1988	0.619	0.619	11.000
January 1989	0.794	0.633	11.000
February 1989	0.794	0.648	11.000
March 1989	0.794	0.662	11.000
April 1989	0.794	0.677	11.000
May 1989	0.793	0.692	11.000
June 1989	0.793	0.706	11.000
July 1989	0.793	0.721	11.000
August 1989	0.793	0.735	11.000
September 1989	0.794	0.750	11.000
October 1989	0.794	0.764	11.000
November 1989	0.794	0.779	11.000
December 1989	0.794	0.794	11.000
January 1990	0.713	0.787	11.000
February 1990	0.713	0.780	11.000
March 1990	0.713	0.773	11.000
April 1990	0.712	0.766	11.000
May 1990	0.711	0.760	11.000
June 1990	0.711	0.753	11.000
July 1990	0.711	0.746	11.000
August 1990	0.711	0.739	11.000
September 1990	0.712	0.732	11.000
October 1990	0.713	0.726	11.000
November 1990	0.713	0.719	11.000
December 1990	0.712	0.712	11.000
January 1991	0.989	0.735	11.000
February 1991	0.926	0.753	11.000
March 1991	1.803	0.844	11.000
April 1991	3.270	1.057	11.000
May 1991	2.811	1.232	11.000
June 1991	2.917	1.416	11.000
July 1991	3.473	1.646	11.000
August 1991	3.715	1.896	11.000
September 1991	3.973	2.168	11.000
October 1991	4.181	2.457	11.000
November 1991	3.746	2.710	11.000
December 1991	1.298	2.758	11.000
January 1992	1.787	2.825	11.000
February 1992	2.031	2.917	11.000
March 1992	3.463	3.055	11.000
April 1992	4.145	3.128	11.000
May 1992	3.461	3.183	11.000
June 1992	4.811	3.340	11.000
July 1992	3.999	3.384	11.000
August 1992	2.651	3.295	11.000
September 1992	1.783	3.113	11.000
October 1992	3.588	3.064	11.000
November 1992	3.748	3.064	11.000
December 1992	3.278	3.229	11.000
January 1993	2.734	3.308	11.000
February 1993	4.130	3.483	11.000
March 1993	4.359	3.557	11.000
April 1993	2.766	3.442	11.000
May 1993	6.079	3.660	11.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
June 1993	6.028	3.762	11.000
July 1993	6.980	4.010	11.000
August 1993	6.477	4.329	11.000
September 1993	4.404	4.548	11.000
October 1993	3.830	4.568	11.000
November 1993	3.592	4.555	11.000
December 1993	4.416	4.650	11.000
January 1994	4.114	4.765	11.000
February 1994	3.049	4.675	11.000
March 1994	3.590	4.611	11.000
April 1994	4.102	4.722	11.000
May 1994	5.214	4.650	11.000
June 1994	5.969	4.645	11.000
July 1994	5.417	4.515	11.000
August 1994	6.142	4.487	11.000
September 1994	6.599	4.670	11.000
October 1994	5.730	4.828	11.000
November 1994	5.775	5.010	11.000
December 1994	4.320	5.002	11.000
January 1995	3.560	4.956	11.000
February 1995	3.641	5.005	11.000
March 1995	3.916	5.032	11.000
April 1995	4.898	5.098	11.000
May 1995	5.520	5.124	11.000
June 1995	8.004	5.294	11.000
July 1995	2.401	5.042	11.000
August 1995	4.831	4.933	11.000
September 1995	5.397	4.833	11.000
October 1995	4.579	4.737	11.000
November 1995	3.509	4.548	11.000
December 1995	2.955	4.434	11.000
January 1996	3.008	4.388	11.000
February 1996	3.099	4.343	11.000
March 1996	3.179	4.282	11.000
April 1996	3.219	4.142	11.000
May 1996	3.200	3.948	11.000
June 1996	4.578	3.663	11.000
July 1996	3.471	3.752	11.000
August 1996	3.192	3.616	11.000
September 1996	3.260	3.437	11.000
October 1996	2.898	3.297	11.000
November 1996	2.542	3.217	11.000
December 1996	2.288	3.161	11.000
January 1997	1.972	3.075	11.000
February 1997	2.525	3.027	11.000
March 1997	2.801	2.995	11.000
April 1997	3.658	3.032	11.000
May 1997	3.923	3.092	11.000
June 1997	4.597	3.094	11.000
July 1997	4.675	3.194	11.000
August 1997	4.166	3.275	11.000
September 1997	3.511	3.296	11.000
October 1997	2.667	3.277	11.000
November 1997	3.333	3.343	11.000
December 1997	1.740	3.297	11.000
January 1998	3.155	3.396	11.000
February 1998	1.964	3.349	11.000
March 1998	3.373	3.397	11.000
April 1998	3.443	3.379	11.000
May 1998	3.487	3.343	11.000
June 1998	4.096	3.301	11.000
July 1998	3.471	3.201	11.000
August 1998	4.546	3.232	11.000
September 1998	4.218	3.291	11.000
October 1998	1.843	3.222	11.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
November 1998	1.589	3.077	11.000
December 1998	1.976	3.097	11.000
January 1999	3.684	3.141	11.000
February 1999	2.678	3.200	11.000
March 1999	3.014	3.170	11.000
April 1999	4.295	3.241	11.000
May 1999	4.031	3.287	11.000
June 1999	6.402	3.479	11.000
July 1999	5.931	3.684	11.000
August 1999	3.621	3.607	11.000
September 1999	3.051	3.510	11.000
October 1999	3.128	3.617	11.000
November 1999	3.013	3.735	11.000
December 1999	0.758	3.634	11.000
January 2000	4.119	3.670	11.000
February 2000	4.986	3.862	11.000
March 2000	5.230	4.047	11.000
April 2000	4.666	4.078	11.000
May 2000	4.461	4.114	11.000
June 2000	5.787	4.063	11.000
July 2000	2.595	3.785	11.000
August 2000	2.912	3.725	11.000
September 2000	3.953	3.801	11.000
October 2000	4.416	3.908	11.000
November 2000	1.076	3.747	11.000
December 2000	0.988	3.766	11.000
January 2001	3.324	3.699	11.000
February 2001	3.856	3.605	11.000
March 2001	4.050	3.507	11.000
April 2001	4.456	3.489	11.000
May 2001	3.816	3.436	11.000
June 2001	4.114	3.296	11.000
July 2001	5.063	3.502	11.000
August 2001	4.516	3.636	11.000
September 2001	5.046	3.727	11.000
October 2001	4.713	3.751	11.000
November 2001	4.298	4.020	11.000
December 2001	3.758	4.251	11.000
January 2002	3.577	4.272	11.000
February 2002	4.096	4.292	11.000
March 2002	4.520	4.331	11.000
April 2002	4.001	4.293	11.000
May 2002	3.750	4.288	11.000
June 2002	4.821	4.347	11.000
July 2002	4.473	4.297	11.000
August 2002	4.328	4.282	11.000
September 2002	4.667	4.250	11.000
October 2002	5.120	4.284	11.000
November 2002	4.408	4.293	11.000
December 2002	3.445	4.267	11.000
January 2003	3.584	4.268	11.000
February 2003	3.944	4.255	11.000
March 2003	4.212	4.229	11.000
April 2003	2.349	4.092	11.000
May 2003	1.671	3.919	11.000
June 2003	4.380	3.882	11.000
July 2003	4.527	3.886	11.000
August 2003	4.699	3.917	11.000
September 2003	4.538	3.906	11.000
October 2003	4.276	3.836	11.000
November 2003	3.753	3.781	11.000
December 2003	3.168	3.758	11.000
January 2004	2.580	3.675	11.000
February 2004	3.353	3.625	11.000
March 2004	2.803	3.508	11.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
April 2004	3.242	3.582	11.000
May 2004	3.563	3.740	11.000
June 2004	4.483	3.749	11.000
July 2004	4.659	3.760	11.000
August 2004	4.164	3.715	11.000
September 2004	3.820	3.655	11.000
October 2004	3.167	3.563	11.000
November 2004	2.080	3.423	11.000
December 2004	3.219	3.428	11.000
January 2005	2.729	3.440	11.000
February 2005	4.131	3.505	11.000
March 2005	2.764	3.502	11.000
April 2005	3.399	3.515	11.000
May 2005	4.676	3.608	11.000
June 2005	5.832	3.720	11.000
July 2005	1.688	3.472	11.000
August 2005	1.329	3.236	11.000
September 2005	2.601	3.134	11.000
October 2005	1.278	2.977	11.000
November 2005	1.098	2.895	11.000
December 2005	1.440	2.747	11.000
January 2006	1.180	2.618	11.000
February 2006	1.362	2.387	11.000
March 2006	0.958	2.237	11.000
April 2006	1.434	2.073	11.000
May 2006	1.286	1.791	11.000
June 2006	4.347	1.667	11.000
July 2006	3.796	1.843	11.000
August 2006	3.941	2.060	11.000
September 2006	2.965	2.091	11.000
October 2006	2.106	2.160	11.000
November 2006	2.469	2.274	11.000
December 2006	3.123	2.414	11.000
January 2007	2.198	2.499	11.000
February 2007	3.133	2.646	11.000
March 2007	3.375	2.848	11.000
April 2007	3.952	3.058	11.000
May 2007	5.164	3.381	11.000
June 2007	3.509	3.311	11.000
July 2007	2.148	3.174	11.000
August 2007	2.426	3.047	11.000
September 2007	1.650	2.938	11.000
October 2007	1.413	2.880	11.000
November 2007	1.854	2.829	11.000
December 2007	0.538	2.613	11.000
January 2008	1.217	2.532	11.000
February 2008	1.190	2.370	11.000
March 2008	2.241	2.275	11.000
April 2008	1.406	2.063	11.000
May 2008	1.614	1.767	11.000
June 2008	1.795	1.624	11.000
July 2008	0.225	1.464	11.000
August 2008	1.145	1.357	11.000
September 2008	0.224	1.239	11.000
October 2008	1.525	1.248	11.000
November 2008	1.983	1.259	11.000
December 2008	1.441	1.334	11.000
January 2009	1.124	1.326	11.000
February 2009	0.465	1.266	11.000
March 2009	1.378	1.194	11.000
April 2009	0.201	1.093	11.000
May 2009	0.241	0.979	11.000
June 2009	0.249	0.850	11.000
July 2009	0.222	0.850	11.000
August 2009	0.268	0.777	11.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
September 2009	0.249	0.779	11.000
October 2009	0.260	0.673	11.000
November 2009	0.223	0.527	11.000
December 2009	0.222	0.425	11.000
January 2010	0.223	0.350	11.000
February 2010	0.235	0.331	11.000
March 2010	0.221	0.234	11.000
April 2010	0.261	0.239	11.000
May 2010	0.136	0.231	11.000
June 2010	0.132	0.221	11.000
July 2010	0.259	0.224	11.000
August 2010	0.247	0.222	11.000
September 2010	1.196	0.301	11.000
October 2010	1.093	0.371	11.000
November 2010	1.065	0.441	11.000
December 2010	0.909	0.498	11.000
January 2011	0.825	0.548	11.000
February 2011	1.189	0.628	11.000
March 2011	1.006	0.693	11.000
April 2011	1.133	0.766	11.000
May 2011	1.696	0.896	11.000
June 2011	1.727	1.029	11.000
July 2011	1.519	1.134	11.000
August 2011	1.796	1.263	11.000
September 2011	2.021	1.332	11.000
October 2011	5.130	1.668	11.000
November 2011	5.068	2.002	11.000
December 2011	3.761	2.239	11.000
January 2012	5.900	2.662	11.000
February 2012	5.694	3.038	11.000
March 2012	2.736	3.182	11.000
April 2012	3.684	3.394	11.000
May 2012	4.229	3.605	11.000
June 2012	3.662	3.767	11.000
July 2012	4.329	4.001	11.000
August 2012	2.488	4.059	11.000
September 2012	4.014	4.225	11.000
October 2012	3.754	4.110	11.000
November 2012	3.065	3.943	11.000
December 2012	2.539	3.841	11.000
January 2013	1.710	3.492	11.000
February 2013	3.299	3.293	11.000
March 2013	2.471	3.270	11.000
April 2013	2.741	3.192	11.000
May 2013	2.822	3.075	11.000
June 2013	3.362	3.050	11.000
July 2013	3.371	2.970	11.000
August 2013	4.462	3.134	11.000
September 2013	4.588	3.182	11.000
October 2013	2.765	3.100	11.000
November 2013	2.089	3.018	11.000
December 2013	2.130	2.984	11.000
January 2014	2.581	3.057	11.000
February 2014	3.080	3.038	11.000
March 2014	2.830	3.068	11.000
April 2014	4.463	3.212	11.000
May 2014	4.231	3.329	11.000
June 2014	3.499	3.341	11.000
July 2014	3.599	3.360	11.000
August 2014	1.369	3.102	11.000
September 2014	1.189	2.819	11.000
October 2014	2.177	2.770	11.000
November 2014	2.534	2.807	11.000
December 2014	2.250	2.817	11.000
January 2015	2.024	2.770	11.000

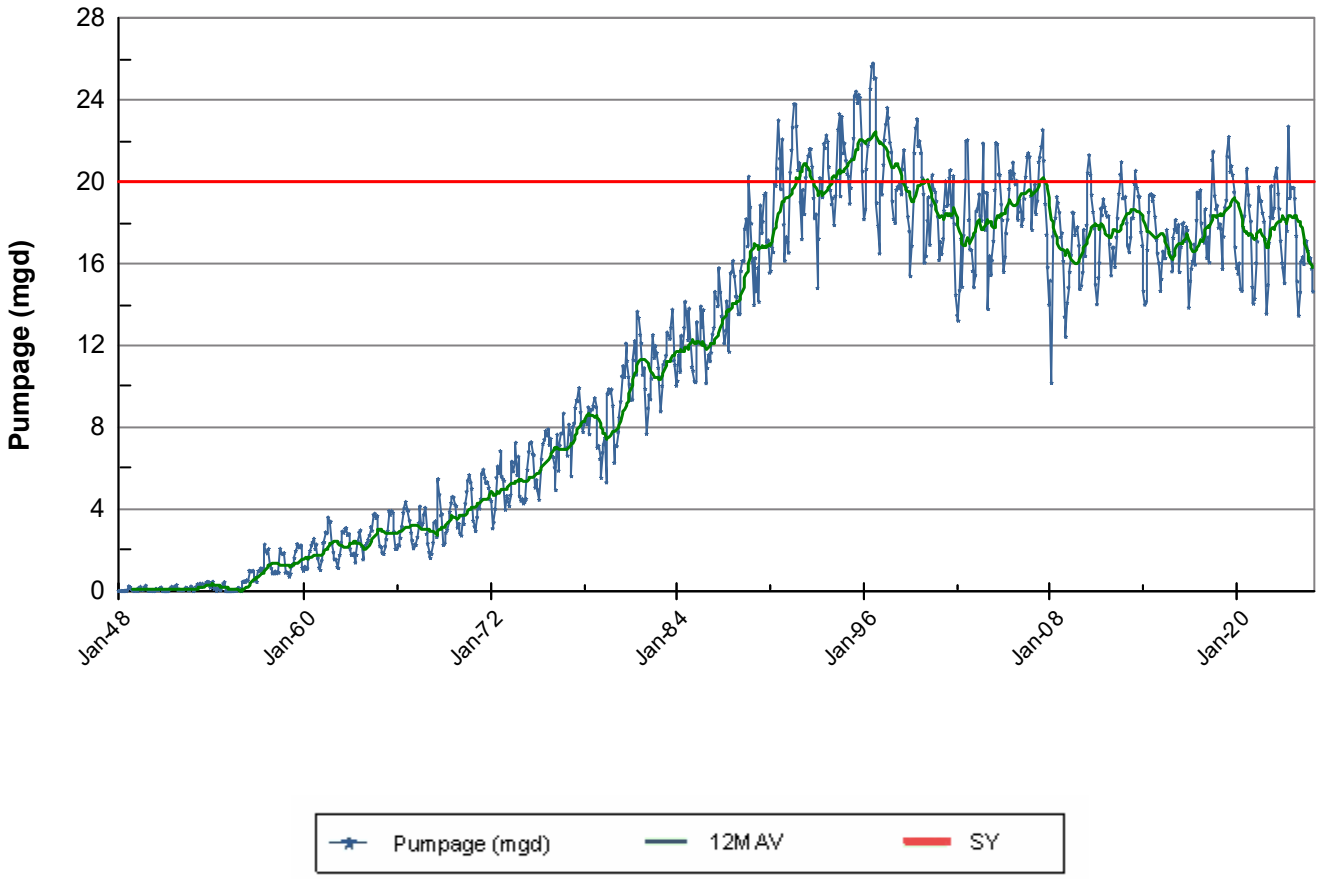
Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
February 2015	2.258	2.702	11.000
March 2015	3.014	2.717	11.000
April 2015	2.805	2.579	11.000
May 2015	3.586	2.525	11.000
June 2015	3.900	2.559	11.000
July 2015	3.160	2.522	11.000
August 2015	1.144	2.503	11.000
September 2015	1.364	2.518	11.000
October 2015	2.639	2.556	11.000
November 2015	2.292	2.536	11.000
December 2015	2.372	2.546	11.000
January 2016	2.791	2.610	11.000
February 2016	3.057	2.677	11.000
March 2016	2.950	2.672	11.000
April 2016	3.255	2.709	11.000
May 2016	3.547	2.706	11.000
June 2016	3.589	2.680	11.000
July 2016	2.765	2.647	11.000
August 2016	2.840	2.788	11.000
September 2016	3.011	2.926	11.000
October 2016	3.122	2.966	11.000
November 2016	3.202	3.042	11.000
December 2016	1.054	2.932	11.000
January 2017	2.919	2.942	11.000
February 2017	2.441	2.891	11.000
March 2017	2.446	2.849	11.000
April 2017	3.205	2.845	11.000
May 2017	2.862	2.788	11.000
June 2017	3.497	2.780	11.000
July 2017	3.248	2.821	11.000
August 2017	3.087	2.841	11.000
September 2017	3.008	2.841	11.000
October 2017	2.513	2.790	11.000
November 2017	2.507	2.732	11.000
December 2017	1.863	2.800	11.000
January 2018	2.130	2.734	11.000
February 2018	1.919	2.690	11.000
March 2018	1.995	2.653	11.000
April 2018	2.091	2.560	11.000
May 2018	2.757	2.551	11.000
June 2018	3.520	2.553	11.000
July 2018	4.264	2.638	11.000
August 2018	2.875	2.620	11.000
September 2018	2.110	2.545	11.000
October 2018	3.392	2.619	11.000
November 2018	2.687	2.634	11.000
December 2018	2.768	2.709	11.000
January 2019	2.581	2.747	11.000
February 2019	2.537	2.798	11.000
March 2019	3.368	2.912	11.000
April 2019	3.544	3.033	11.000
May 2019	3.597	3.103	11.000
June 2019	3.681	3.117	11.000
July 2019	3.900	3.087	11.000
August 2019	3.913	3.173	11.000
September 2019	3.609	3.298	11.000
October 2019	3.729	3.326	11.000
November 2019	3.623	3.404	11.000
December 2019	2.597	3.390	11.000
January 2020	1.938	3.336	11.000
February 2020	2.642	3.345	11.000
March 2020	2.843	3.301	11.000
April 2020	2.575	3.221	11.000
May 2020	2.853	3.159	11.000
June 2020	3.073	3.108	11.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
July 2020	3.266	3.055	11.000
August 2020	2.932	2.973	11.000
September 2020	3.190	2.938	11.000
October 2020	3.184	2.893	11.000
November 2020	3.236	2.861	11.000
December 2020	2.683	2.868	11.000
January 2021	2.467	2.912	11.000
February 2021	2.580	2.907	11.000
March 2021	2.574	2.884	11.000
April 2021	3.572	2.967	11.000
May 2021	3.712	3.039	11.000
June 2021	4.095	3.124	11.000
July 2021	4.118	3.195	11.000
August 2021	3.166	3.215	11.000
September 2021	2.958	3.195	11.000
October 2021	2.921	3.173	11.000
November 2021	2.935	3.148	11.000
December 2021	2.674	3.148	11.000
January 2022	3.273	3.215	11.000
February 2022	2.972	3.248	11.000
March 2022	2.829	3.269	11.000
April 2022	3.068	3.227	11.000
May 2022	3.625	3.220	11.000
June 2022	3.816	3.196	11.000
July 2022	3.785	3.169	11.000
August 2022	3.902	3.230	11.000
September 2022	3.712	3.293	11.000
October 2022	3.127	3.310	11.000
November 2022	3.243	3.336	11.000
December 2022	2.457	3.317	11.000
January 2023	3.173	3.309	11.000
February 2023	2.919	3.305	11.000
March 2023	2.733	3.297	11.000
April 2023	3.962	3.371	11.000
May 2023	4.099	3.411	11.000
June 2023	4.232	3.445	11.000
July 2023	4.415	3.498	11.000
August 2023	4.457	3.544	11.000
September 2023	4.780	3.633	11.000
October 2023	3.711	3.682	11.000
November 2023	2.982	3.660	11.000
December 2023	2.539	3.667	11.000
January 2024	1.795	3.552	11.000
February 2024	2.916	3.552	11.000
March 2024	4.089	3.665	11.000
April 2024	4.320	3.695	11.000
May 2024	4.008	3.687	11.000
June 2024	4.465	3.706	11.000
July 2024	4.450	3.709	11.000
August 2024	4.198	3.688	11.000
September 2024	4.382	3.655	11.000
October 2024	4.207	3.696	11.000
November 2024	3.972	3.778	11.000
December 2024	2.863	3.805	11.000
January 2025	0.052	3.660	11.000

APPENDIX G

Monthly Pumpage Chart

12 Month Moving Average



Report Parameters

Date:	01/01/1948 - 01/13/2025
Island:	Maui
Well Owner:	All
Well Reporter:	All
Well # Prefix:	All
Aquifer Sector:	Wailuku
Aquifer:	60102 Iao
Water Quality:	Fresh (0-250 ppm), Brackish (251-16,999 ppm), Not Specified
Potable/Non-Potable:	All
TMK:	All
PWS:	All
Aquifer Type:	Alluvial, Basal, Caprock, Deep Fresh Water, Dike, Perched, Not
Pump Capacity:	Specified
Well Use:	All

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
January 1948	0.013		20.000
February 1948	0.007		20.000
March 1948	0.013		20.000
April 1948	0.000		20.000
May 1948	0.000		20.000
June 1948	0.027		20.000
July 1948	0.000		20.000
August 1948	0.073		20.000
September 1948	0.240		20.000
October 1948	0.195		20.000
November 1948	0.104		20.000
December 1948	0.050	0.060	20.000
January 1949	0.000	0.059	20.000
February 1949	0.031	0.061	20.000
March 1949	0.083	0.067	20.000
April 1949	0.000	0.067	20.000
May 1949	0.166	0.081	20.000
June 1949	0.222	0.097	20.000
July 1949	0.071	0.103	20.000
August 1949	0.071	0.103	20.000
September 1949	0.193	0.099	20.000
October 1949	0.277	0.106	20.000
November 1949	0.080	0.104	20.000
December 1949	0.026	0.102	20.000
January 1950	0.015	0.103	20.000
February 1950	0.020	0.102	20.000
March 1950	0.058	0.100	20.000
April 1950	0.004	0.100	20.000
May 1950	0.006	0.087	20.000
June 1950	0.117	0.078	20.000
July 1950	0.055	0.077	20.000
August 1950	0.070	0.077	20.000
September 1950	0.153	0.073	20.000
October 1950	0.184	0.066	20.000
November 1950	0.010	0.060	20.000
December 1950	0.000	0.058	20.000
January 1951	0.000	0.057	20.000
February 1951	0.005	0.055	20.000
March 1951	0.000	0.050	20.000
April 1951	0.028	0.052	20.000
May 1951	0.133	0.063	20.000
June 1951	0.221	0.072	20.000
July 1951	0.188	0.083	20.000
August 1951	0.157	0.090	20.000
September 1951	0.263	0.099	20.000
October 1951	0.305	0.109	20.000
November 1951	0.064	0.114	20.000
December 1951	0.079	0.120	20.000
January 1952	0.058	0.125	20.000
February 1952	0.040	0.128	20.000
March 1952	0.047	0.132	20.000
April 1952	0.118	0.140	20.000
May 1952	0.175	0.143	20.000
June 1952	0.154	0.137	20.000
July 1952	0.048	0.126	20.000
August 1952	0.065	0.118	20.000
September 1952	0.236	0.116	20.000
October 1952	0.178	0.105	20.000
November 1952	0.000	0.100	20.000
December 1952	0.077	0.100	20.000
January 1953	0.222	0.113	20.000
February 1953	0.338	0.138	20.000
March 1953	0.209	0.152	20.000
April 1953	0.374	0.173	20.000
May 1953	0.202	0.175	20.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
June 1953	0.363	0.193	20.000
July 1953	0.316	0.215	20.000
August 1953	0.339	0.238	20.000
September 1953	0.437	0.255	20.000
October 1953	0.458	0.278	20.000
November 1953	0.442	0.315	20.000
December 1953	0.175	0.323	20.000
January 1954	0.362	0.335	20.000
February 1954	0.462	0.345	20.000
March 1954	0.121	0.338	20.000
April 1954	0.160	0.320	20.000
May 1954	0.000	0.303	20.000
June 1954	0.131	0.284	20.000
July 1954	0.133	0.268	20.000
August 1954	0.048	0.244	20.000
September 1954	0.228	0.227	20.000
October 1954	0.380	0.220	20.000
November 1954	0.440	0.220	20.000
December 1954	0.000	0.205	20.000
January 1955	0.000	0.175	20.000
February 1955	0.000	0.137	20.000
March 1955	0.000	0.127	20.000
April 1955	0.000	0.113	20.000
May 1955	0.000	0.113	20.000
June 1955	0.009	0.103	20.000
July 1955	0.065	0.097	20.000
August 1955	0.022	0.095	20.000
September 1955	0.139	0.088	20.000
October 1955	0.166	0.070	20.000
November 1955	0.089	0.041	20.000
December 1955	0.000	0.041	20.000
January 1956	0.452	0.078	20.000
February 1956	0.483	0.119	20.000
March 1956	0.452	0.156	20.000
April 1956	0.533	0.201	20.000
May 1956	0.516	0.244	20.000
June 1956	1.000	0.326	20.000
July 1956	0.968	0.402	20.000
August 1956	0.968	0.480	20.000
September 1956	1.000	0.552	20.000
October 1956	0.516	0.581	20.000
November 1956	0.533	0.618	20.000
December 1956	0.452	0.656	20.000
January 1957	0.992	0.701	20.000
February 1957	1.005	0.745	20.000
March 1957	1.116	0.800	20.000
April 1957	1.039	0.842	20.000
May 1957	1.128	0.893	20.000
June 1957	2.280	1.000	20.000
July 1957	1.956	1.082	20.000
August 1957	1.844	1.155	20.000
September 1957	2.071	1.244	20.000
October 1957	1.311	1.311	20.000
November 1957	1.117	1.359	20.000
December 1957	0.871	1.394	20.000
January 1958	0.871	1.384	20.000
February 1958	0.964	1.381	20.000
March 1958	0.871	1.360	20.000
April 1958	0.933	1.351	20.000
May 1958	0.903	1.333	20.000
June 1958	2.076	1.316	20.000
July 1958	1.867	1.308	20.000
August 1958	1.806	1.305	20.000
September 1958	1.867	1.288	20.000
October 1958	0.903	1.254	20.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
November 1958	0.933	1.239	20.000
December 1958	0.871	1.239	20.000
January 1959	0.710	1.225	20.000
February 1959	0.857	1.216	20.000
March 1959	1.226	1.246	20.000
April 1959	1.333	1.279	20.000
May 1959	1.613	1.338	20.000
June 1959	1.959	1.329	20.000
July 1959	2.301	1.365	20.000
August 1959	2.186	1.397	20.000
September 1959	2.137	1.419	20.000
October 1959	2.239	1.530	20.000
November 1959	1.133	1.547	20.000
December 1959	1.000	1.558	20.000
January 1960	1.197	1.598	20.000
February 1960	1.077	1.617	20.000
March 1960	1.115	1.607	20.000
April 1960	1.600	1.630	20.000
May 1960	1.962	1.659	20.000
June 1960	2.242	1.682	20.000
July 1960	2.385	1.689	20.000
August 1960	2.559	1.720	20.000
September 1960	2.056	1.714	20.000
October 1960	2.283	1.717	20.000
November 1960	1.606	1.757	20.000
December 1960	1.149	1.769	20.000
January 1961	1.032	1.755	20.000
February 1961	1.500	1.791	20.000
March 1961	2.355	1.894	20.000
April 1961	2.392	1.960	20.000
May 1961	2.876	2.036	20.000
June 1961	2.828	2.085	20.000
July 1961	3.598	2.186	20.000
August 1961	3.384	2.255	20.000
September 1961	3.396	2.367	20.000
October 1961	2.328	2.370	20.000
November 1961	1.900	2.395	20.000
December 1961	1.548	2.428	20.000
January 1962	1.548	2.471	20.000
February 1962	1.179	2.444	20.000
March 1962	1.129	2.342	20.000
April 1962	1.767	2.290	20.000
May 1962	2.378	2.249	20.000
June 1962	2.917	2.256	20.000
July 1962	2.857	2.194	20.000
August 1962	3.050	2.166	20.000
September 1962	3.087	2.141	20.000
October 1962	2.749	2.176	20.000
November 1962	2.787	2.250	20.000
December 1962	2.079	2.294	20.000
January 1963	1.769	2.312	20.000
February 1963	1.786	2.363	20.000
March 1963	1.842	2.422	20.000
April 1963	1.400	2.392	20.000
May 1963	1.774	2.341	20.000
June 1963	2.433	2.301	20.000
July 1963	2.867	2.302	20.000
August 1963	2.969	2.295	20.000
September 1963	2.208	2.222	20.000
October 1963	1.548	2.122	20.000
November 1963	2.133	2.067	20.000
December 1963	2.258	2.082	20.000
January 1964	2.355	2.131	20.000
February 1964	2.504	2.191	20.000
March 1964	2.724	2.264	20.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
April 1964	3.136	2.409	20.000
May 1964	2.956	2.508	20.000
June 1964	3.739	2.616	20.000
July 1964	3.787	2.693	20.000
August 1964	3.572	2.743	20.000
September 1964	3.670	2.865	20.000
October 1964	2.989	2.985	20.000
November 1964	2.200	2.991	20.000
December 1964	2.161	2.983	20.000
January 1965	1.871	2.942	20.000
February 1965	1.821	2.886	20.000
March 1965	2.194	2.841	20.000
April 1965	2.530	2.791	20.000
May 1965	2.948	2.790	20.000
June 1965	3.913	2.805	20.000
July 1965	3.729	2.800	20.000
August 1965	3.922	2.829	20.000
September 1965	3.832	2.843	20.000
October 1965	2.904	2.836	20.000
November 1965	2.067	2.824	20.000
December 1965	2.065	2.816	20.000
January 1966	2.258	2.849	20.000
February 1966	2.226	2.882	20.000
March 1966	2.596	2.916	20.000
April 1966	3.159	2.968	20.000
May 1966	3.834	3.042	20.000
June 1966	4.047	3.053	20.000
July 1966	4.361	3.106	20.000
August 1966	3.974	3.110	20.000
September 1966	3.936	3.119	20.000
October 1966	3.455	3.165	20.000
November 1966	2.858	3.231	20.000
December 1966	2.483	3.265	20.000
January 1967	2.097	3.252	20.000
February 1967	2.286	3.257	20.000
March 1967	2.258	3.229	20.000
April 1967	2.633	3.185	20.000
May 1967	3.334	3.143	20.000
June 1967	4.134	3.151	20.000
July 1967	3.152	3.050	20.000
August 1967	3.296	2.993	20.000
September 1967	3.741	2.977	20.000
October 1967	4.075	3.029	20.000
November 1967	2.800	3.024	20.000
December 1967	2.323	3.011	20.000
January 1968	1.903	2.995	20.000
February 1968	1.621	2.939	20.000
March 1968	1.806	2.902	20.000
April 1968	2.367	2.879	20.000
May 1968	3.351	2.881	20.000
June 1968	3.412	2.821	20.000
July 1968	2.644	2.778	20.000
August 1968	5.476	2.960	20.000
September 1968	4.724	3.042	20.000
October 1968	3.700	3.011	20.000
November 1968	3.757	3.090	20.000
December 1968	2.258	3.085	20.000
January 1969	2.326	3.120	20.000
February 1969	2.857	3.223	20.000
March 1969	3.000	3.323	20.000
April 1969	3.367	3.406	20.000
May 1969	3.871	3.449	20.000
June 1969	4.300	3.523	20.000
July 1969	4.613	3.687	20.000
August 1969	4.581	3.613	20.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
September 1969	4.229	3.572	20.000
October 1969	4.163	3.610	20.000
November 1969	3.102	3.556	20.000
December 1969	3.290	3.642	20.000
January 1970	2.806	3.682	20.000
February 1970	2.714	3.670	20.000
March 1970	3.689	3.727	20.000
April 1970	3.282	3.720	20.000
May 1970	4.280	3.754	20.000
June 1970	4.867	3.801	20.000
July 1970	5.404	3.867	20.000
August 1970	5.672	3.958	20.000
September 1970	5.307	4.048	20.000
October 1970	5.004	4.118	20.000
November 1970	3.442	4.147	20.000
December 1970	3.161	4.136	20.000
January 1971	2.935	4.147	20.000
February 1971	3.607	4.221	20.000
March 1971	4.161	4.260	20.000
April 1971	4.033	4.323	20.000
May 1971	4.509	4.342	20.000
June 1971	5.716	4.413	20.000
July 1971	5.939	4.457	20.000
August 1971	5.538	4.446	20.000
September 1971	5.289	4.445	20.000
October 1971	5.319	4.471	20.000
November 1971	5.043	4.604	20.000
December 1971	4.490	4.715	20.000
January 1972	4.402	4.837	20.000
February 1972	3.069	4.792	20.000
March 1972	3.355	4.725	20.000
April 1972	4.018	4.724	20.000
May 1972	5.550	4.811	20.000
June 1972	6.093	4.842	20.000
July 1972	5.763	4.827	20.000
August 1972	6.840	4.936	20.000
September 1972	5.608	4.962	20.000
October 1972	5.484	4.976	20.000
November 1972	5.391	5.005	20.000
December 1972	3.976	4.962	20.000
January 1973	4.645	4.983	20.000
February 1973	4.522	5.104	20.000
March 1973	4.161	5.171	20.000
April 1973	4.704	5.228	20.000
May 1973	6.323	5.292	20.000
June 1973	5.849	5.272	20.000
July 1973	6.294	5.316	20.000
August 1973	7.250	5.351	20.000
September 1973	5.668	5.356	20.000
October 1973	6.575	5.446	20.000
November 1973	4.636	5.384	20.000
December 1973	4.419	5.420	20.000
January 1974	4.516	5.410	20.000
February 1974	4.286	5.390	20.000
March 1974	4.355	5.406	20.000
April 1974	4.508	5.390	20.000
May 1974	5.926	5.357	20.000
June 1974	6.820	5.438	20.000
July 1974	7.217	5.515	20.000
August 1974	7.269	5.516	20.000
September 1974	6.716	5.604	20.000
October 1974	6.638	5.609	20.000
November 1974	5.060	5.644	20.000
December 1974	5.417	5.727	20.000
January 1975	4.955	5.764	20.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
February 1975	4.464	5.779	20.000
March 1975	5.885	5.906	20.000
April 1975	6.441	6.067	20.000
May 1975	7.193	6.173	20.000
June 1975	7.401	6.221	20.000
July 1975	7.827	6.272	20.000
August 1975	7.598	6.300	20.000
September 1975	7.902	6.399	20.000
October 1975	7.142	6.441	20.000
November 1975	7.443	6.639	20.000
December 1975	6.580	6.736	20.000
January 1976	6.553	6.869	20.000
February 1976	6.044	7.001	20.000
March 1976	4.937	6.922	20.000
April 1976	7.644	7.022	20.000
May 1976	5.885	6.913	20.000
June 1976	7.114	6.889	20.000
July 1976	7.700	6.879	20.000
August 1976	7.715	6.888	20.000
September 1976	8.678	6.953	20.000
October 1976	6.963	6.938	20.000
November 1976	6.983	6.900	20.000
December 1976	6.616	6.903	20.000
January 1977	8.135	7.035	20.000
February 1977	7.662	7.169	20.000
March 1977	5.613	7.226	20.000
April 1977	8.030	7.258	20.000
May 1977	8.198	7.451	20.000
June 1977	8.950	7.604	20.000
July 1977	9.337	7.740	20.000
August 1977	9.268	7.869	20.000
September 1977	9.921	7.973	20.000
October 1977	8.740	8.121	20.000
November 1977	8.148	8.218	20.000
December 1977	7.770	8.314	20.000
January 1978	8.262	8.325	20.000
February 1978	8.390	8.386	20.000
March 1978	8.170	8.599	20.000
April 1978	8.977	8.678	20.000
May 1978	7.663	8.633	20.000
June 1978	8.859	8.625	20.000
July 1978	8.873	8.587	20.000
August 1978	9.040	8.568	20.000
September 1978	9.421	8.526	20.000
October 1978	8.979	8.546	20.000
November 1978	7.004	8.451	20.000
December 1978	7.097	8.395	20.000
January 1979	6.452	8.244	20.000
February 1979	5.536	8.006	20.000
March 1979	6.774	7.889	20.000
April 1979	7.167	7.739	20.000
May 1979	7.491	7.724	20.000
June 1979	5.311	7.429	20.000
July 1979	9.625	7.491	20.000
August 1979	9.863	7.560	20.000
September 1979	9.697	7.583	20.000
October 1979	9.852	7.656	20.000
November 1979	9.054	7.826	20.000
December 1979	6.273	7.758	20.000
January 1980	7.097	7.812	20.000
February 1980	7.075	7.940	20.000
March 1980	7.762	8.022	20.000
April 1980	8.474	8.131	20.000
May 1980	9.262	8.279	20.000
June 1980	10.492	8.710	20.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
July 1980	10.986	8.824	20.000
August 1980	10.460	8.874	20.000
September 1980	12.092	9.073	20.000
October 1980	11.245	9.189	20.000
November 1980	10.463	9.307	20.000
December 1980	10.091	9.625	20.000
January 1981	9.346	9.812	20.000
February 1981	9.358	10.003	20.000
March 1981	11.283	10.296	20.000
April 1981	12.215	10.608	20.000
May 1981	10.575	10.717	20.000
June 1981	13.652	10.980	20.000
July 1981	13.345	11.177	20.000
August 1981	12.522	11.349	20.000
September 1981	12.107	11.350	20.000
October 1981	10.569	11.294	20.000
November 1981	10.884	11.329	20.000
December 1981	9.875	11.311	20.000
January 1982	7.684	11.172	20.000
February 1982	8.926	11.136	20.000
March 1982	9.572	10.994	20.000
April 1982	9.363	10.756	20.000
May 1982	10.379	10.740	20.000
June 1982	12.507	10.645	20.000
July 1982	11.392	10.482	20.000
August 1982	11.979	10.436	20.000
September 1982	11.629	10.397	20.000
October 1982	10.901	10.424	20.000
November 1982	10.475	10.390	20.000
December 1982	8.779	10.299	20.000
January 1983	10.017	10.493	20.000
February 1983	11.070	10.672	20.000
March 1983	11.219	10.809	20.000
April 1983	11.505	10.988	20.000
May 1983	12.632	11.175	20.000
June 1983	12.489	11.174	20.000
July 1983	12.325	11.252	20.000
August 1983	12.863	11.325	20.000
September 1983	13.751	11.502	20.000
October 1983	11.264	11.532	20.000
November 1983	11.051	11.580	20.000
December 1983	10.035	11.685	20.000
January 1984	10.263	11.705	20.000
February 1984	11.534	11.744	20.000
March 1984	10.712	11.702	20.000
April 1984	12.482	11.783	20.000
May 1984	11.802	11.714	20.000
June 1984	12.865	11.745	20.000
July 1984	14.139	11.897	20.000
August 1984	13.514	11.951	20.000
September 1984	12.265	11.827	20.000
October 1984	13.803	12.039	20.000
November 1984	12.151	12.130	20.000
December 1984	10.946	12.206	20.000
January 1985	10.763	12.248	20.000
February 1985	10.252	12.141	20.000
March 1985	10.201	12.099	20.000
April 1985	13.132	12.153	20.000
May 1985	12.097	12.177	20.000
June 1985	12.122	12.115	20.000
July 1985	13.902	12.096	20.000
August 1985	12.894	12.044	20.000
September 1985	13.741	12.167	20.000
October 1985	12.010	12.018	20.000
November 1985	10.154	11.851	20.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
December 1985	10.898	11.847	20.000
January 1986	11.545	11.912	20.000
February 1986	11.226	11.994	20.000
March 1986	11.647	12.114	20.000
April 1986	12.538	12.064	20.000
May 1986	12.860	12.128	20.000
June 1986	14.618	12.336	20.000
July 1986	14.316	12.370	20.000
August 1986	13.914	12.456	20.000
September 1986	15.769	12.625	20.000
October 1986	14.607	12.841	20.000
November 1986	13.426	13.114	20.000
December 1986	13.306	13.314	20.000
January 1987	12.100	13.361	20.000
February 1987	12.726	13.486	20.000
March 1987	14.155	13.695	20.000
April 1987	13.794	13.799	20.000
May 1987	11.691	13.702	20.000
June 1987	15.528	13.778	20.000
July 1987	15.603	13.885	20.000
August 1987	16.135	14.070	20.000
September 1987	15.381	14.038	20.000
October 1987	14.396	14.020	20.000
November 1987	14.371	14.099	20.000
December 1987	13.528	14.117	20.000
January 1988	13.526	14.236	20.000
February 1988	15.625	14.478	20.000
March 1988	16.125	14.642	20.000
April 1988	16.110	14.835	20.000
May 1988	17.696	15.335	20.000
June 1988	18.166	15.555	20.000
July 1988	16.838	15.658	20.000
August 1988	20.243	16.000	20.000
September 1988	18.752	16.281	20.000
October 1988	17.952	16.578	20.000
November 1988	16.084	16.721	20.000
December 1988	13.980	16.758	20.000
January 1989	16.257	16.986	20.000
February 1989	14.638	16.904	20.000
March 1989	15.784	16.875	20.000
April 1989	14.132	16.710	20.000
May 1989	18.836	16.805	20.000
June 1989	17.482	16.748	20.000
July 1989	18.045	16.849	20.000
August 1989	19.349	16.774	20.000
September 1989	19.433	16.831	20.000
October 1989	17.032	16.754	20.000
November 1989	17.126	16.841	20.000
December 1989	15.557	16.973	20.000
January 1990	15.636	16.921	20.000
February 1990	16.767	17.098	20.000
March 1990	16.554	17.162	20.000
April 1990	19.912	17.644	20.000
May 1990	19.793	17.724	20.000
June 1990	20.638	17.987	20.000
July 1990	22.985	18.399	20.000
August 1990	21.131	18.547	20.000
September 1990	19.624	18.563	20.000
October 1990	22.063	18.982	20.000
November 1990	17.903	19.047	20.000
December 1990	16.137	19.095	20.000
January 1991	17.299	19.234	20.000
February 1991	17.046	19.257	20.000
March 1991	16.536	19.256	20.000
April 1991	20.444	19.300	20.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
May 1991	21.540	19.446	20.000
June 1991	22.650	19.613	20.000
July 1991	23.782	19.680	20.000
August 1991	23.764	19.899	20.000
September 1991	22.711	20.156	20.000
October 1991	20.566	20.032	20.000
November 1991	20.914	20.282	20.000
December 1991	18.990	20.520	20.000
January 1992	17.188	20.511	20.000
February 1992	19.599	20.724	20.000
March 1992	18.408	20.880	20.000
April 1992	20.203	20.859	20.000
May 1992	20.606	20.782	20.000
June 1992	21.244	20.664	20.000
July 1992	21.594	20.482	20.000
August 1992	21.586	20.301	20.000
September 1992	20.729	20.135	20.000
October 1992	19.191	20.021	20.000
November 1992	18.203	19.795	20.000
December 1992	18.395	19.745	20.000
January 1993	14.802	19.547	20.000
February 1993	17.207	19.347	20.000
March 1993	20.170	19.494	20.000
April 1993	20.002	19.477	20.000
May 1993	19.233	19.363	20.000
June 1993	21.848	19.413	20.000
July 1993	21.632	19.416	20.000
August 1993	22.259	19.473	20.000
September 1993	21.942	19.574	20.000
October 1993	20.717	19.701	20.000
November 1993	19.592	19.817	20.000
December 1993	18.892	19.858	20.000
January 1994	19.189	20.224	20.000
February 1994	17.876	20.279	20.000
March 1994	19.309	20.208	20.000
April 1994	20.088	20.215	20.000
May 1994	22.535	20.490	20.000
June 1994	23.305	20.611	20.000
July 1994	19.282	20.415	20.000
August 1994	23.166	20.491	20.000
September 1994	21.387	20.445	20.000
October 1994	21.866	20.541	20.000
November 1994	21.032	20.661	20.000
December 1994	20.373	20.784	20.000
January 1995	20.284	20.875	20.000
February 1995	18.925	20.963	20.000
March 1995	19.684	20.994	20.000
April 1995	21.120	21.080	20.000
May 1995	22.114	21.045	20.000
June 1995	24.152	21.115	20.000
July 1995	24.397	21.542	20.000
August 1995	23.838	21.598	20.000
September 1995	24.244	21.836	20.000
October 1995	24.102	22.022	20.000
November 1995	21.810	22.087	20.000
December 1995	20.499	22.097	20.000
January 1996	18.163	21.921	20.000
February 1996	18.661	21.899	20.000
March 1996	20.615	21.976	20.000
April 1996	21.753	22.029	20.000
May 1996	22.067	22.025	20.000
June 1996	24.529	22.057	20.000
July 1996	25.629	22.159	20.000
August 1996	25.768	22.320	20.000
September 1996	25.028	22.385	20.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
October 1996	25.042	22.464	20.000
November 1996	18.959	22.226	20.000
December 1996	17.840	22.005	20.000
January 1997	16.492	21.865	20.000
February 1997	19.896	21.968	20.000
March 1997	19.371	21.864	20.000
April 1997	20.827	21.787	20.000
May 1997	22.033	21.785	20.000
June 1997	22.792	21.640	20.000
July 1997	23.605	21.471	20.000
August 1997	23.123	21.251	20.000
September 1997	21.906	20.991	20.000
October 1997	21.430	20.690	20.000
November 1997	19.041	20.696	20.000
December 1997	18.176	20.724	20.000
January 1998	17.987	20.849	20.000
February 1998	19.601	20.824	20.000
March 1998	19.754	20.856	20.000
April 1998	19.669	20.760	20.000
May 1998	19.898	20.582	20.000
June 1998	19.376	20.297	20.000
July 1998	20.598	20.046	20.000
August 1998	21.537	19.914	20.000
September 1998	19.948	19.751	20.000
October 1998	19.702	19.607	20.000
November 1998	18.287	19.544	20.000
December 1998	17.571	19.494	20.000
January 1999	15.379	19.277	20.000
February 1999	16.850	19.047	20.000
March 1999	19.101	18.993	20.000
April 1999	21.389	19.136	20.000
May 1999	22.629	19.364	20.000
June 1999	23.048	19.670	20.000
July 1999	21.731	19.764	20.000
August 1999	21.967	19.800	20.000
September 1999	21.388	19.920	20.000
October 1999	20.199	19.962	20.000
November 1999	19.384	20.053	20.000
December 1999	16.044	19.926	20.000
January 2000	16.356	20.007	20.000
February 2000	18.098	20.111	20.000
March 2000	19.238	20.123	20.000
April 2000	16.918	19.750	20.000
May 2000	18.839	19.434	20.000
June 2000	20.335	19.208	20.000
July 2000	19.622	19.032	20.000
August 2000	19.494	18.826	20.000
September 2000	19.036	18.630	20.000
October 2000	18.299	18.472	20.000
November 2000	16.167	18.204	20.000
December 2000	17.052	18.288	20.000
January 2001	16.458	18.296	20.000
February 2001	17.210	18.222	20.000
March 2001	18.578	18.167	20.000
April 2001	20.034	18.427	20.000
May 2001	18.808	18.424	20.000
June 2001	18.873	18.303	20.000
July 2001	20.175	18.349	20.000
August 2001	20.563	18.438	20.000
September 2001	18.259	18.373	20.000
October 2001	20.275	18.538	20.000
November 2001	17.942	18.686	20.000
December 2001	14.467	18.470	20.000
January 2002	13.467	18.221	20.000
February 2002	13.209	17.888	20.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
March 2002	14.688	17.563	20.000
April 2002	17.207	17.328	20.000
May 2002	14.862	16.999	20.000
June 2002	17.371	16.874	20.000
July 2002	20.062	16.864	20.000
August 2002	21.978	16.982	20.000
September 2002	22.029	17.296	20.000
October 2002	18.126	17.117	20.000
November 2002	16.687	17.013	20.000
December 2002	16.667	17.196	20.000
January 2003	15.635	17.377	20.000
February 2003	14.835	17.512	20.000
March 2003	15.430	17.574	20.000
April 2003	18.557	17.686	20.000
May 2003	18.687	18.005	20.000
June 2003	19.375	18.172	20.000
July 2003	18.301	18.026	20.000
August 2003	18.097	17.702	20.000
September 2003	21.863	17.688	20.000
October 2003	19.490	17.802	20.000
November 2003	17.645	17.882	20.000
December 2003	19.454	18.114	20.000
January 2004	13.774	17.959	20.000
February 2004	16.372	18.087	20.000
March 2004	15.438	18.088	20.000
April 2004	16.149	17.887	20.000
May 2004	17.094	17.754	20.000
June 2004	19.598	17.773	20.000
July 2004	21.894	18.072	20.000
August 2004	21.834	18.384	20.000
September 2004	20.353	18.258	20.000
October 2004	20.319	18.327	20.000
November 2004	18.887	18.430	20.000
December 2004	18.118	18.319	20.000
January 2005	15.591	18.470	20.000
February 2005	16.329	18.467	20.000
March 2005	17.470	18.636	20.000
April 2005	18.150	18.803	20.000
May 2005	19.641	19.015	20.000
June 2005	20.513	19.092	20.000
July 2005	20.126	18.944	20.000
August 2005	20.930	18.869	20.000
September 2005	20.387	18.872	20.000
October 2005	19.862	18.834	20.000
November 2005	20.043	18.930	20.000
December 2005	18.136	18.932	20.000
January 2006	19.118	19.226	20.000
February 2006	18.535	19.409	20.000
March 2006	17.840	19.440	20.000
April 2006	18.181	19.443	20.000
May 2006	19.166	19.403	20.000
June 2006	20.230	19.380	20.000
July 2006	21.210	19.470	20.000
August 2006	21.394	19.509	20.000
September 2006	21.220	19.578	20.000
October 2006	19.294	19.531	20.000
November 2006	17.641	19.330	20.000
December 2006	19.441	19.439	20.000
January 2007	19.857	19.501	20.000
February 2007	18.419	19.491	20.000
March 2007	19.070	19.594	20.000
April 2007	20.962	19.825	20.000
May 2007	21.179	19.993	20.000
June 2007	21.700	20.116	20.000
July 2007	22.533	20.226	20.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
August 2007	21.025	20.195	20.000
September 2007	18.906	20.002	20.000
October 2007	17.406	19.845	20.000
November 2007	15.812	19.693	20.000
December 2007	13.988	19.238	20.000
January 2008	15.163	18.847	20.000
February 2008	10.165	18.159	20.000
March 2008	17.323	18.013	20.000
April 2008	17.524	17.727	20.000
May 2008	18.235	17.482	20.000
June 2008	19.258	17.278	20.000
July 2008	18.967	16.981	20.000
August 2008	18.497	16.770	20.000
September 2008	17.293	16.636	20.000
October 2008	17.482	16.642	20.000
November 2008	16.113	16.667	20.000
December 2008	13.404	16.619	20.000
January 2009	12.422	16.390	20.000
February 2009	14.077	16.716	20.000
March 2009	14.833	16.509	20.000
April 2009	15.581	16.347	20.000
May 2009	16.406	16.194	20.000
June 2009	18.490	16.130	20.000
July 2009	18.469	16.089	20.000
August 2009	17.395	15.997	20.000
September 2009	17.629	16.025	20.000
October 2009	17.778	16.050	20.000
November 2009	16.878	16.113	20.000
December 2009	14.759	16.226	20.000
January 2010	14.921	16.434	20.000
February 2010	15.565	16.559	20.000
March 2010	17.646	16.793	20.000
April 2010	16.361	16.858	20.000
May 2010	17.876	16.981	20.000
June 2010	20.428	17.142	20.000
July 2010	21.288	17.377	20.000
August 2010	20.324	17.621	20.000
September 2010	19.358	17.765	20.000
October 2010	18.520	17.827	20.000
November 2010	17.718	17.897	20.000
December 2010	14.978	17.915	20.000
January 2011	14.008	17.839	20.000
February 2011	15.307	17.818	20.000
March 2011	16.043	17.684	20.000
April 2011	18.685	17.878	20.000
May 2011	18.352	17.917	20.000
June 2011	19.139	17.810	20.000
July 2011	18.765	17.600	20.000
August 2011	18.509	17.449	20.000
September 2011	18.293	17.360	20.000
October 2011	18.322	17.343	20.000
November 2011	16.941	17.279	20.000
December 2011	15.417	17.315	20.000
January 2012	16.777	17.546	20.000
February 2012	16.784	17.669	20.000
March 2012	15.825	17.651	20.000
April 2012	17.279	17.534	20.000
May 2012	18.209	17.522	20.000
June 2012	19.407	17.544	20.000
July 2012	20.345	17.676	20.000
August 2012	20.954	17.879	20.000
September 2012	19.181	17.953	20.000
October 2012	19.197	18.026	20.000
November 2012	19.262	18.220	20.000
December 2012	17.963	18.432	20.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
January 2013	16.896	18.442	20.000
February 2013	16.552	18.422	20.000
March 2013	17.274	18.543	20.000
April 2013	18.198	18.620	20.000
May 2013	18.231	18.622	20.000
June 2013	19.895	18.662	20.000
July 2013	20.529	18.678	20.000
August 2013	19.687	18.572	20.000
September 2013	19.279	18.580	20.000
October 2013	19.266	18.586	20.000
November 2013	17.537	18.442	20.000
December 2013	16.869	18.351	20.000
January 2014	14.656	18.165	20.000
February 2014	13.995	17.951	20.000
March 2014	14.130	17.689	20.000
April 2014	16.668	17.562	20.000
May 2014	18.516	17.585	20.000
June 2014	19.358	17.541	20.000
July 2014	19.387	17.446	20.000
August 2014	19.064	17.394	20.000
September 2014	19.299	17.395	20.000
October 2014	18.280	17.313	20.000
November 2014	17.161	17.282	20.000
December 2014	16.497	17.251	20.000
January 2015	16.011	17.364	20.000
February 2015	14.661	17.419	20.000
March 2015	15.241	17.512	20.000
April 2015	16.589	17.505	20.000
May 2015	16.252	17.317	20.000
June 2015	16.262	17.059	20.000
July 2015	17.643	16.913	20.000
August 2015	16.754	16.721	20.000
September 2015	16.555	16.492	20.000
October 2015	16.357	16.332	20.000
November 2015	15.609	16.203	20.000
December 2015	17.249	16.265	20.000
January 2016	17.670	16.404	20.000
February 2016	18.131	16.693	20.000
March 2016	17.534	16.884	20.000
April 2016	17.896	16.993	20.000
May 2016	15.579	16.937	20.000
June 2016	16.804	16.982	20.000
July 2016	17.928	17.006	20.000
August 2016	17.995	17.109	20.000
September 2016	17.105	17.155	20.000
October 2016	17.788	17.274	20.000
November 2016	17.623	17.442	20.000
December 2016	13.846	17.158	20.000
January 2017	15.147	16.948	20.000
February 2017	15.748	16.749	20.000
March 2017	16.129	16.632	20.000
April 2017	16.927	16.552	20.000
May 2017	15.949	16.582	20.000
June 2017	18.114	16.692	20.000
July 2017	19.466	16.820	20.000
August 2017	19.195	16.920	20.000
September 2017	19.586	17.127	20.000
October 2017	17.969	17.142	20.000
November 2017	17.269	17.112	20.000
December 2017	17.022	17.377	20.000
January 2018	18.665	17.670	20.000
February 2018	16.266	17.713	20.000
March 2018	17.277	17.809	20.000
April 2018	16.054	17.736	20.000
May 2018	18.347	17.936	20.000

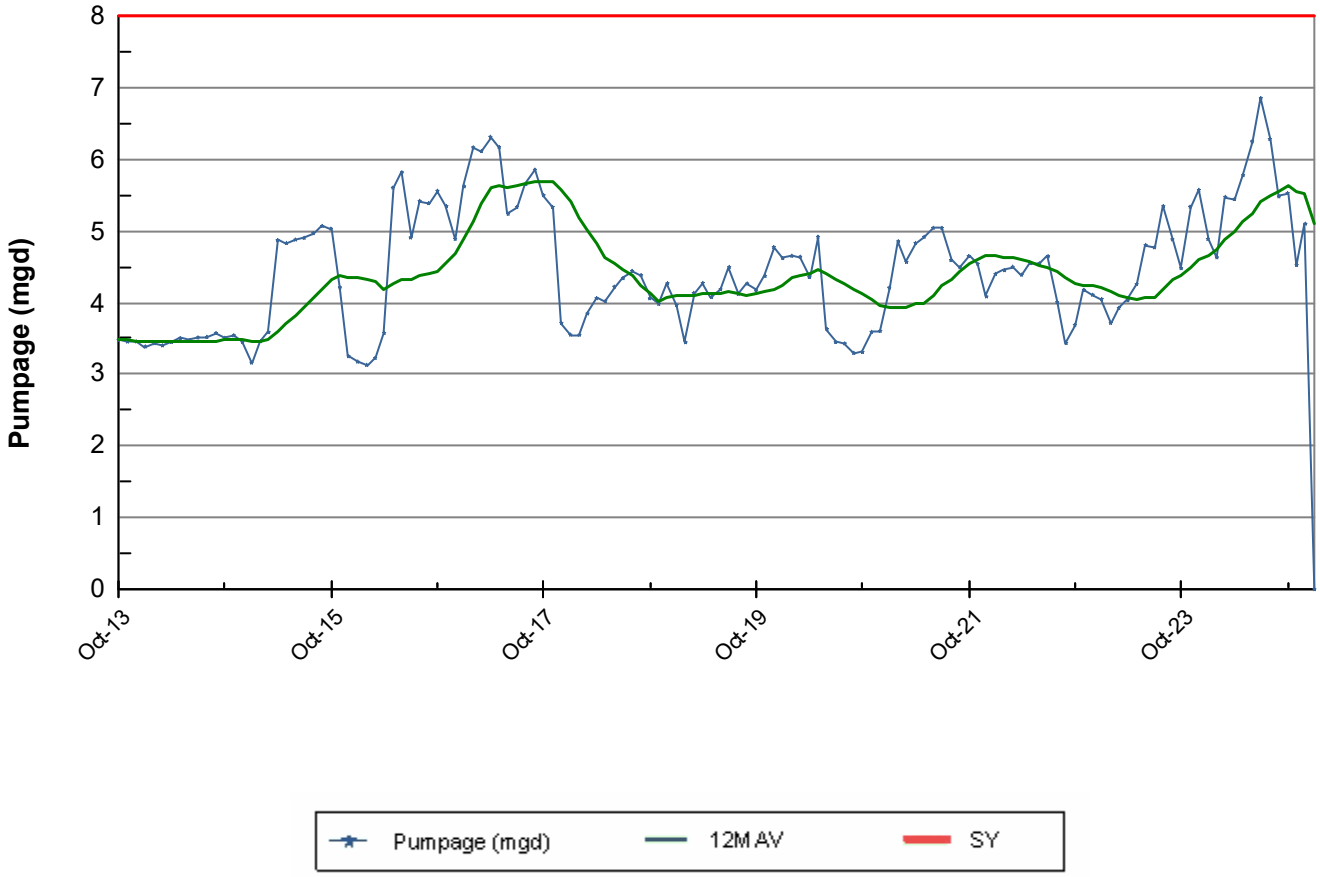
Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
June 2018	21.050	18.180	20.000
July 2018	21.468	18.347	20.000
August 2018	19.315	18.357	20.000
September 2018	18.647	18.279	20.000
October 2018	18.829	18.351	20.000
November 2018	17.744	18.390	20.000
December 2018	17.914	18.465	20.000
January 2019	17.675	18.382	20.000
February 2019	15.740	18.338	20.000
March 2019	17.314	18.341	20.000
April 2019	18.734	18.565	20.000
May 2019	19.089	18.627	20.000
June 2019	21.223	18.641	20.000
July 2019	22.186	18.701	20.000
August 2019	20.476	18.798	20.000
September 2019	20.766	18.974	20.000
October 2019	20.328	19.099	20.000
November 2019	19.479	19.244	20.000
December 2019	16.793	19.150	20.000
January 2020	15.783	18.993	20.000
February 2020	15.500	18.973	20.000
March 2020	16.007	18.864	20.000
April 2020	14.771	18.533	20.000
May 2020	14.668	18.165	20.000
June 2020	17.779	17.878	20.000
July 2020	18.338	17.557	20.000
August 2020	19.973	17.515	20.000
September 2020	20.632	17.504	20.000
October 2020	19.364	17.424	20.000
November 2020	18.828	17.370	20.000
December 2020	18.059	17.475	20.000
January 2021	14.846	17.397	20.000
February 2021	14.042	17.276	20.000
March 2021	14.280	17.132	20.000
April 2021	16.026	17.236	20.000
May 2021	17.074	17.437	20.000
June 2021	19.738	17.600	20.000
July 2021	19.052	17.659	20.000
August 2021	19.052	17.583	20.000
September 2021	18.478	17.403	20.000
October 2021	18.039	17.293	20.000
November 2021	17.195	17.157	20.000
December 2021	13.550	16.781	20.000
January 2022	14.945	16.789	20.000
February 2022	17.014	17.037	20.000
March 2022	18.270	17.369	20.000
April 2022	19.799	17.684	20.000
May 2022	18.212	17.779	20.000
June 2022	18.715	17.693	20.000
July 2022	20.232	17.792	20.000
August 2022	20.652	17.925	20.000
September 2022	19.405	18.002	20.000
October 2022	18.681	18.056	20.000
November 2022	17.111	18.049	20.000
December 2022	16.025	18.255	20.000
January 2023	15.768	18.324	20.000
February 2023	15.040	18.159	20.000
March 2023	18.077	18.143	20.000
April 2023	17.594	17.959	20.000
May 2023	22.684	18.332	20.000
June 2023	19.195	18.372	20.000
July 2023	19.707	18.328	20.000
August 2023	19.675	18.247	20.000
September 2023	19.698	18.271	20.000
October 2023	19.171	18.312	20.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
November 2023	17.346	18.332	20.000
December 2023	15.123	18.257	20.000
January 2024	13.452	18.064	20.000
February 2024	14.600	18.027	20.000
March 2024	16.076	17.860	20.000
April 2024	16.318	17.754	20.000
May 2024	15.970	17.194	20.000
June 2024	16.962	17.008	20.000
July 2024	17.098	16.791	20.000
August 2024	16.614	16.536	20.000
September 2024	16.090	16.235	20.000
October 2024	16.265	15.993	20.000
November 2024	15.748	15.860	20.000
December 2024	14.631	15.819	20.000
January 2025			20.000

APPENDIX H

Monthly Pumpage Chart

12 Month Moving Average



Report Parameters

Date:	10/1/2013 - 01/13/2025
Island:	Maui
Well Owner:	All
Well Reporter:	All
Well # Prefix:	All
Aquifer Sector:	Wailuku
Aquifer:	60103 Waihee
Water Quality:	Fresh (0-250 ppm), Brackish (251-16,999 ppm), Not Specified
Potable/Non-Potable:	All
TMK:	All
PWS:	All
Aquifer Type:	Alluvial, Basal, Caprock, Deep Fresh Water, Dike, Perched, Not
Pump Capacity:	Specified
Well Use:	All

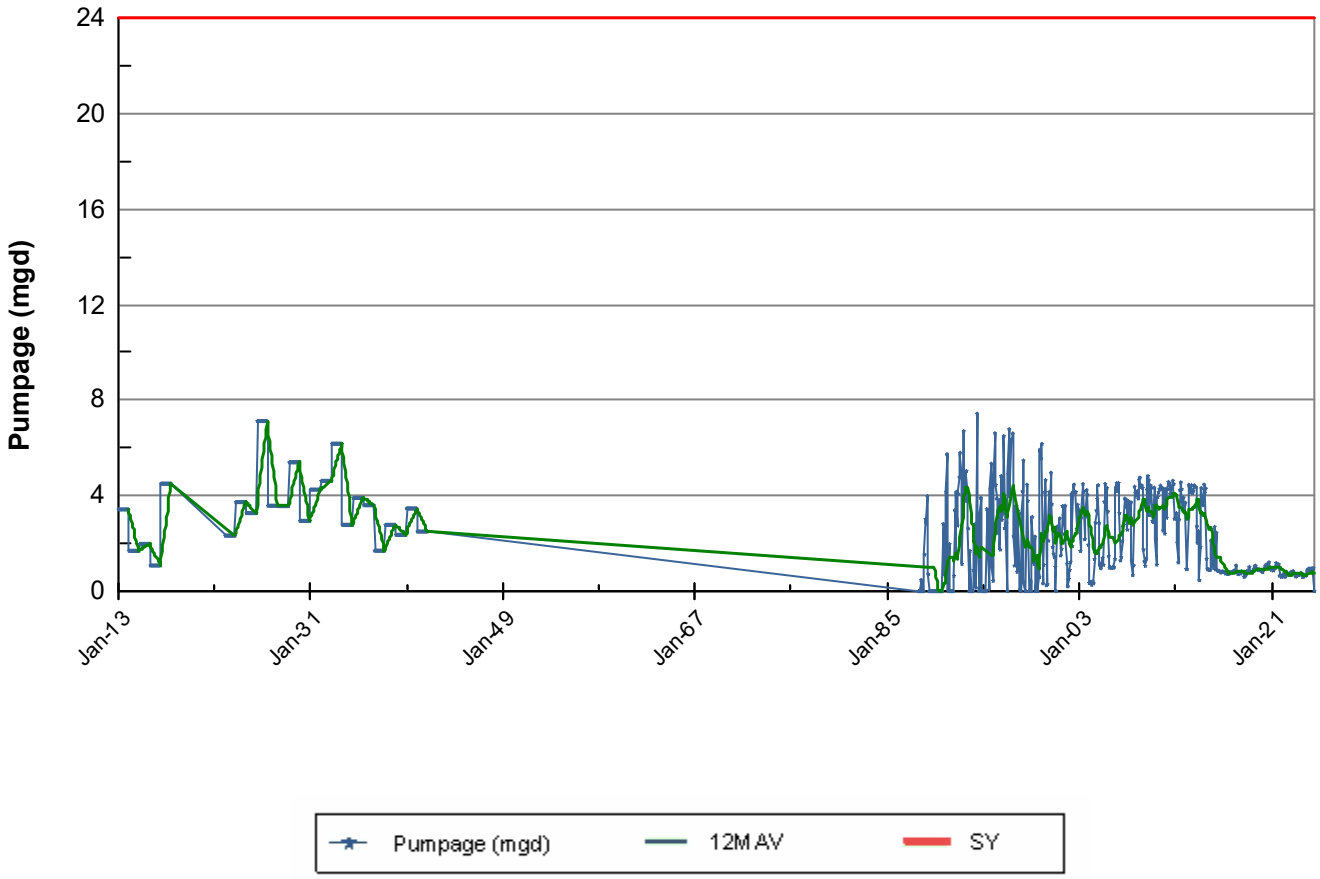
Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
October 2013	3.476	3.471	8.000
November 2013	3.455	3.471	8.000
December 2013	3.456	3.469	8.000
January 2014	3.387	3.462	8.000
February 2014	3.431	3.457	8.000
March 2014	3.401	3.450	8.000
April 2014	3.449	3.449	8.000
May 2014	3.502	3.454	8.000
June 2014	3.472	3.453	8.000
July 2014	3.512	3.458	8.000
August 2014	3.520	3.461	8.000
September 2014	3.574	3.470	8.000
October 2014	3.507	3.472	8.000
November 2014	3.541	3.479	8.000
December 2014	3.448	3.479	8.000
January 2015	3.163	3.460	8.000
February 2015	3.460	3.462	8.000
March 2015	3.586	3.478	8.000
April 2015	4.870	3.596	8.000
May 2015	4.831	3.707	8.000
June 2015	4.879	3.824	8.000
July 2015	4.903	3.940	8.000
August 2015	4.967	4.061	8.000
September 2015	5.069	4.185	8.000
October 2015	5.030	4.312	8.000
November 2015	4.210	4.368	8.000
December 2015	3.249	4.351	8.000
January 2016	3.175	4.352	8.000
February 2016	3.130	4.325	8.000
March 2016	3.227	4.295	8.000
April 2016	3.576	4.187	8.000
May 2016	5.603	4.252	8.000
June 2016	5.815	4.330	8.000
July 2016	4.907	4.330	8.000
August 2016	5.418	4.368	8.000
September 2016	5.385	4.394	8.000
October 2016	5.560	4.438	8.000
November 2016	5.346	4.533	8.000
December 2016	4.889	4.669	8.000
January 2017	5.620	4.873	8.000
February 2017	6.164	5.126	8.000
March 2017	6.112	5.366	8.000
April 2017	6.312	5.594	8.000
May 2017	6.168	5.641	8.000
June 2017	5.238	5.593	8.000
July 2017	5.333	5.629	8.000
August 2017	5.654	5.648	8.000
September 2017	5.853	5.687	8.000
October 2017	5.498	5.682	8.000
November 2017	5.333	5.681	8.000
December 2017	3.716	5.583	8.000
January 2018	3.553	5.411	8.000
February 2018	3.550	5.193	8.000
March 2018	3.848	5.005	8.000
April 2018	4.061	4.817	8.000
May 2018	4.021	4.638	8.000
June 2018	4.221	4.553	8.000
July 2018	4.339	4.471	8.000
August 2018	4.441	4.369	8.000
September 2018	4.382	4.247	8.000
October 2018	4.059	4.127	8.000
November 2018	3.981	4.014	8.000
December 2018	4.269	4.060	8.000
January 2019	3.965	4.095	8.000
February 2019	3.446	4.086	8.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
March 2019	4.135	4.110	8.000
April 2019	4.273	4.127	8.000
May 2019	4.076	4.132	8.000
June 2019	4.185	4.129	8.000
July 2019	4.496	4.142	8.000
August 2019	4.120	4.115	8.000
September 2019	4.266	4.106	8.000
October 2019	4.169	4.115	8.000
November 2019	4.372	4.148	8.000
December 2019	4.773	4.190	8.000
January 2020	4.619	4.244	8.000
February 2020	4.651	4.345	8.000
March 2020	4.640	4.387	8.000
April 2020	4.354	4.393	8.000
May 2020	4.918	4.464	8.000
June 2020	3.632	4.418	8.000
July 2020	3.449	4.330	8.000
August 2020	3.429	4.273	8.000
September 2020	3.297	4.192	8.000
October 2020	3.310	4.120	8.000
November 2020	3.591	4.055	8.000
December 2020	3.605	3.958	8.000
January 2021	4.208	3.924	8.000
February 2021	4.855	3.941	8.000
March 2021	4.567	3.934	8.000
April 2021	4.832	3.974	8.000
May 2021	4.917	3.974	8.000
June 2021	5.042	4.092	8.000
July 2021	5.040	4.224	8.000
August 2021	4.592	4.321	8.000
September 2021	4.492	4.421	8.000
October 2021	4.648	4.532	8.000
November 2021	4.540	4.611	8.000
December 2021	4.084	4.651	8.000
January 2022	4.399	4.667	8.000
February 2022	4.450	4.634	8.000
March 2022	4.499	4.628	8.000
April 2022	4.390	4.591	8.000
May 2022	4.549	4.561	8.000
June 2022	4.545	4.519	8.000
July 2022	4.645	4.486	8.000
August 2022	4.004	4.437	8.000
September 2022	3.436	4.349	8.000
October 2022	3.689	4.269	8.000
November 2022	4.176	4.239	8.000
December 2022	4.108	4.241	8.000
January 2023	4.049	4.212	8.000
February 2023	3.718	4.151	8.000
March 2023	3.926	4.103	8.000
April 2023	4.031	4.073	8.000
May 2023	4.256	4.049	8.000
June 2023	4.803	4.070	8.000
July 2023	4.768	4.080	8.000
August 2023	5.345	4.192	8.000
September 2023	4.881	4.313	8.000
October 2023	4.478	4.378	8.000
November 2023	5.337	4.475	8.000
December 2023	5.571	4.597	8.000
January 2024	4.888	4.667	8.000
February 2024	4.630	4.743	8.000
March 2024	5.474	4.872	8.000
April 2024	5.443	4.990	8.000
May 2024	5.776	5.116	8.000
June 2024	6.247	5.237	8.000
July 2024	6.851	5.410	8.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
August 2024	6.281	5.488	8.000
September 2024	5.479	5.538	8.000
October 2024	5.528	5.625	8.000
November 2024	4.524	5.558	8.000
December 2024	5.100	5.518	8.000
January 2025	0.000	5.111	8.000

APPENDIX I

Monthly Pumpage Chart
12 Month Moving Average



Report Parameters

Date:	01/01/1913 - 01/15/2025
Island:	Maui
Well Owner:	All
Well Reporter:	All
Well # Prefix:	All
Aquifer Sector:	Koolau
Aquifer:	60401 Haiku
Water Quality:	Fresh (0-250 ppm), Brackish (251-16,999 ppm), Not Specified
Potable/Non-Potable:	All
TMK:	All
PWS:	All
Aquifer Type:	Alluvial, Basal, Caprock, Deep Fresh Water, Dike, Perched, Not
Pump Capacity:	Specified
Well Use:	All

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
January 1913	3.425		24.000
February 1913	3.425		24.000
March 1913	3.425		24.000
April 1913	3.425		24.000
May 1913	3.425		24.000
June 1913	3.425		24.000
July 1913	3.425		24.000
August 1913	3.425		24.000
September 1913	3.425		24.000
October 1913	3.425		24.000
November 1913	3.425		24.000
December 1913	3.425	3.425	24.000
January 1914	1.696	3.281	24.000
February 1914	1.696	3.137	24.000
March 1914	1.696	2.992	24.000
April 1914	1.696	2.848	24.000
May 1914	1.696	2.704	24.000
June 1914	1.696	2.560	24.000
July 1914	1.696	2.416	24.000
August 1914	1.696	2.272	24.000
September 1914	1.696	2.128	24.000
October 1914	1.696	1.984	24.000
November 1914	1.696	1.840	24.000
December 1914	1.696	1.696	24.000
January 1915	1.984	1.720	24.000
February 1915	1.984	1.744	24.000
March 1915	1.984	1.768	24.000
April 1915	1.984	1.792	24.000
May 1915	1.984	1.816	24.000
June 1915	1.984	1.840	24.000
July 1915	1.984	1.864	24.000
August 1915	1.984	1.888	24.000
September 1915	1.984	1.912	24.000
October 1915	1.984	1.936	24.000
November 1915	1.984	1.960	24.000
December 1915	1.984	1.984	24.000
January 1916	1.079	1.908	24.000
February 1916	1.079	1.833	24.000
March 1916	1.079	1.757	24.000
April 1916	1.079	1.682	24.000
May 1916	1.079	1.607	24.000
June 1916	1.079	1.531	24.000
July 1916	1.079	1.456	24.000
August 1916	1.079	1.381	24.000
September 1916	1.079	1.305	24.000
October 1916	1.079	1.230	24.000
November 1916	1.079	1.155	24.000
December 1916	1.079	1.079	24.000
January 1917	4.504	1.365	24.000
February 1917	4.504	1.650	24.000
March 1917	4.504	1.935	24.000
April 1917	4.504	2.221	24.000
May 1917	4.504	2.506	24.000
June 1917	4.504	2.792	24.000
July 1917	4.504	3.077	24.000
August 1917	4.504	3.362	24.000
September 1917	4.504	3.648	24.000
October 1917	4.504	3.933	24.000
November 1917	4.504	4.219	24.000
December 1917	4.504	4.504	24.000
January 1918			24.000
February 1918			24.000
March 1918			24.000
April 1918			24.000
May 1918			24.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
June 1918			24.000
July 1918			24.000
August 1918			24.000
September 1918			24.000
October 1918			24.000
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July 1922			24.000
August 1922			24.000
September 1922			24.000
October 1922			24.000
November 1922			24.000
December 1922			24.000
January 1923	2.329		24.000
February 1923	2.329		24.000
March 1923	2.329		24.000
April 1923	2.329		24.000
May 1923	2.329		24.000
June 1923	2.329		24.000
July 1923	2.329		24.000
August 1923	2.329		24.000
September 1923	2.329		24.000
October 1923	2.329		24.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
November 1923	2.329		24.000
December 1923	2.329	2.329	24.000
January 1924	3.727	2.445	24.000
February 1924	3.727	2.562	24.000
March 1924	3.727	2.678	24.000
April 1924	3.727	2.795	24.000
May 1924	3.727	2.911	24.000
June 1924	3.727	3.028	24.000
July 1924	3.727	3.144	24.000
August 1924	3.727	3.261	24.000
September 1924	3.727	3.377	24.000
October 1924	3.727	3.494	24.000
November 1924	3.727	3.610	24.000
December 1924	3.727	3.727	24.000
January 1925	3.268	3.689	24.000
February 1925	3.268	3.650	24.000
March 1925	3.268	3.612	24.000
April 1925	3.268	3.574	24.000
May 1925	3.268	3.536	24.000
June 1925	3.268	3.498	24.000
July 1925	3.268	3.459	24.000
August 1925	3.268	3.421	24.000
September 1925	3.268	3.383	24.000
October 1925	3.268	3.345	24.000
November 1925	3.268	3.307	24.000
December 1925	3.268	3.268	24.000
January 1926	7.121	3.589	24.000
February 1926	7.121	3.911	24.000
March 1926	7.121	4.232	24.000
April 1926	7.121	4.553	24.000
May 1926	7.121	4.874	24.000
June 1926	7.121	5.195	24.000
July 1926	7.121	5.516	24.000
August 1926	7.121	5.837	24.000
September 1926	7.121	6.158	24.000
October 1926	7.121	6.479	24.000
November 1926	7.121	6.800	24.000
December 1926	7.121	7.121	24.000
January 1927	3.581	6.826	24.000
February 1927	3.581	6.531	24.000
March 1927	3.581	6.236	24.000
April 1927	3.581	5.941	24.000
May 1927	3.581	5.646	24.000
June 1927	3.581	5.351	24.000
July 1927	3.581	5.056	24.000
August 1927	3.581	4.761	24.000
September 1927	3.581	4.466	24.000
October 1927	3.581	4.171	24.000
November 1927	3.581	3.876	24.000
December 1927	3.581	3.581	24.000
January 1928	3.560	3.579	24.000
February 1928	3.560	3.577	24.000
March 1928	3.560	3.576	24.000
April 1928	3.560	3.574	24.000
May 1928	3.560	3.572	24.000
June 1928	3.560	3.570	24.000
July 1928	3.560	3.569	24.000
August 1928	3.560	3.567	24.000
September 1928	3.560	3.565	24.000
October 1928	3.560	3.564	24.000
November 1928	3.560	3.562	24.000
December 1928	3.560	3.560	24.000
January 1929	5.395	3.713	24.000
February 1929	5.395	3.866	24.000
March 1929	5.395	4.019	24.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
April 1929	5.395	4.172	24.000
May 1929	5.395	4.324	24.000
June 1929	5.395	4.477	24.000
July 1929	5.395	4.630	24.000
August 1929	5.395	4.783	24.000
September 1929	5.395	4.936	24.000
October 1929	5.395	5.089	24.000
November 1929	5.395	5.242	24.000
December 1929	5.395	5.395	24.000
January 1930	2.948	5.191	24.000
February 1930	2.948	4.987	24.000
March 1930	2.948	4.783	24.000
April 1930	2.948	4.579	24.000
May 1930	2.948	4.375	24.000
June 1930	2.948	4.171	24.000
July 1930	2.948	3.967	24.000
August 1930	2.948	3.763	24.000
September 1930	2.948	3.560	24.000
October 1930	2.948	3.356	24.000
November 1930	2.948	3.152	24.000
December 1930	2.948	2.948	24.000
January 1931	4.255	3.057	24.000
February 1931	4.255	3.166	24.000
March 1931	4.255	3.275	24.000
April 1931	4.255	3.384	24.000
May 1931	4.255	3.492	24.000
June 1931	4.255	3.601	24.000
July 1931	4.255	3.710	24.000
August 1931	4.255	3.819	24.000
September 1931	4.255	3.928	24.000
October 1931	4.255	4.037	24.000
November 1931	4.255	4.146	24.000
December 1931	4.255	4.255	24.000
January 1932	4.620	4.285	24.000
February 1932	4.620	4.316	24.000
March 1932	4.620	4.346	24.000
April 1932	4.620	4.377	24.000
May 1932	4.620	4.407	24.000
June 1932	4.620	4.438	24.000
July 1932	4.620	4.468	24.000
August 1932	4.620	4.498	24.000
September 1932	4.620	4.529	24.000
October 1932	4.620	4.559	24.000
November 1932	4.620	4.590	24.000
December 1932	4.620	4.620	24.000
January 1933	6.175	4.750	24.000
February 1933	6.175	4.879	24.000
March 1933	6.175	5.009	24.000
April 1933	6.175	5.139	24.000
May 1933	6.175	5.268	24.000
June 1933	6.175	5.398	24.000
July 1933	6.175	5.527	24.000
August 1933	6.175	5.657	24.000
September 1933	6.175	5.787	24.000
October 1933	6.175	5.916	24.000
November 1933	6.175	6.046	24.000
December 1933	6.175	6.175	24.000
January 1934	2.781	5.892	24.000
February 1934	2.781	5.610	24.000
March 1934	2.781	5.327	24.000
April 1934	2.781	5.044	24.000
May 1934	2.781	4.761	24.000
June 1934	2.781	4.478	24.000
July 1934	2.781	4.195	24.000
August 1934	2.781	3.912	24.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
September 1934	2.781	3.629	24.000
October 1934	2.781	3.347	24.000
November 1934	2.781	3.064	24.000
December 1934	2.781	2.781	24.000
January 1935	3.910	2.875	24.000
February 1935	3.910	2.969	24.000
March 1935	3.910	3.063	24.000
April 1935	3.910	3.157	24.000
May 1935	3.910	3.251	24.000
June 1935	3.910	3.345	24.000
July 1935	3.910	3.439	24.000
August 1935	3.910	3.533	24.000
September 1935	3.910	3.627	24.000
October 1935	3.910	3.721	24.000
November 1935	3.910	3.816	24.000
December 1935	3.910	3.910	24.000
January 1936	3.598	3.884	24.000
February 1936	3.598	3.858	24.000
March 1936	3.598	3.832	24.000
April 1936	3.598	3.806	24.000
May 1936	3.598	3.780	24.000
June 1936	3.598	3.754	24.000
July 1936	3.598	3.728	24.000
August 1936	3.598	3.702	24.000
September 1936	3.598	3.676	24.000
October 1936	3.598	3.650	24.000
November 1936	3.598	3.624	24.000
December 1936	3.598	3.598	24.000
January 1937	1.701	3.440	24.000
February 1937	1.701	3.282	24.000
March 1937	1.701	3.124	24.000
April 1937	1.701	2.966	24.000
May 1937	1.701	2.808	24.000
June 1937	1.701	2.650	24.000
July 1937	1.701	2.492	24.000
August 1937	1.701	2.334	24.000
September 1937	1.701	2.176	24.000
October 1937	1.701	2.018	24.000
November 1937	1.701	1.859	24.000
December 1937	1.701	1.701	24.000
January 1938	2.781	1.791	24.000
February 1938	2.781	1.881	24.000
March 1938	2.781	1.971	24.000
April 1938	2.781	2.061	24.000
May 1938	2.781	2.151	24.000
June 1938	2.781	2.241	24.000
July 1938	2.781	2.331	24.000
August 1938	2.781	2.421	24.000
September 1938	2.781	2.511	24.000
October 1938	2.781	2.601	24.000
November 1938	2.781	2.691	24.000
December 1938	2.781	2.781	24.000
January 1939	2.364	2.746	24.000
February 1939	2.364	2.711	24.000
March 1939	2.364	2.677	24.000
April 1939	2.364	2.642	24.000
May 1939	2.364	2.607	24.000
June 1939	2.364	2.573	24.000
July 1939	2.364	2.538	24.000
August 1939	2.364	2.503	24.000
September 1939	2.364	2.468	24.000
October 1939	2.364	2.434	24.000
November 1939	2.364	2.399	24.000
December 1939	2.364	2.364	24.000
January 1940	3.467	2.456	24.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
February 1940	3.467	2.548	24.000
March 1940	3.467	2.640	24.000
April 1940	3.467	2.732	24.000
May 1940	3.467	2.824	24.000
June 1940	3.467	2.916	24.000
July 1940	3.467	3.008	24.000
August 1940	3.467	3.100	24.000
September 1940	3.467	3.192	24.000
October 1940	3.467	3.283	24.000
November 1940	3.467	3.375	24.000
December 1940	3.467	3.467	24.000
January 1941	2.499	3.386	24.000
February 1941	2.499	3.306	24.000
March 1941	2.499	3.225	24.000
April 1941	2.499	3.144	24.000
May 1941	2.499	3.064	24.000
June 1941	2.499	2.983	24.000
July 1941	2.499	2.902	24.000
August 1941	2.499	2.821	24.000
September 1941	2.499	2.741	24.000
October 1941	2.499	2.660	24.000
November 1941	2.499	2.579	24.000
December 1941	2.499	2.499	24.000
January 1942			24.000
February 1942			24.000
March 1942			24.000
April 1942			24.000
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Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
July 1945			24.000
August 1945			24.000
September 1945			24.000
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November 1945			24.000
December 1945			24.000
January 1946			24.000
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October 1950			24.000
November 1950			24.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
December 1950			24.000
January 1951			24.000
February 1951			24.000
March 1951			24.000
April 1951			24.000
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November 1955			24.000
December 1955			24.000
January 1956			24.000
February 1956			24.000
March 1956			24.000
April 1956			24.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
May 1956			24.000
June 1956			24.000
July 1956			24.000
August 1956			24.000
September 1956			24.000
October 1956			24.000
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April 1961			24.000
May 1961			24.000
June 1961			24.000
July 1961			24.000
August 1961			24.000
September 1961			24.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
October 1961			24.000
November 1961			24.000
December 1961			24.000
January 1962			24.000
February 1962			24.000
March 1962			24.000
April 1962			24.000
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July 1966			24.000
August 1966			24.000
September 1966			24.000
October 1966			24.000
November 1966			24.000
December 1966			24.000
January 1967			24.000
February 1967			24.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
March 1967			24.000
April 1967			24.000
May 1967			24.000
June 1967			24.000
July 1967			24.000
August 1967			24.000
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February 1972			24.000
March 1972			24.000
April 1972			24.000
May 1972			24.000
June 1972			24.000
July 1972			24.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
August 1972			24.000
September 1972			24.000
October 1972			24.000
November 1972			24.000
December 1972			24.000
January 1973			24.000
February 1973			24.000
March 1973			24.000
April 1973			24.000
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January 1974			24.000
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March 1974			24.000
April 1974			24.000
May 1974			24.000
June 1974			24.000
July 1974			24.000
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July 1977			24.000
August 1977			24.000
September 1977			24.000
October 1977			24.000
November 1977			24.000
December 1977			24.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
January 1978			24.000
February 1978			24.000
March 1978			24.000
April 1978			24.000
May 1978			24.000
June 1978			24.000
July 1978			24.000
August 1978			24.000
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September 1982			24.000
October 1982			24.000
November 1982			24.000
December 1982			24.000
January 1983			24.000
February 1983			24.000
March 1983			24.000
April 1983			24.000
May 1983			24.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
June 1983			24.000
July 1983			24.000
August 1983			24.000
September 1983			24.000
October 1983			24.000
November 1983			24.000
December 1983			24.000
January 1984			24.000
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March 1984			24.000
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January 1987			24.000
February 1987			24.000
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April 1987			24.000
May 1987			24.000
June 1987			24.000
July 1987			24.000
August 1987			24.000
September 1987			24.000
October 1987			24.000
November 1987			24.000
December 1987	0.000		24.000
January 1988	0.000		24.000
February 1988	0.000		24.000
March 1988	0.471		24.000
April 1988	0.000		24.000
May 1988	0.000		24.000
June 1988	0.000		24.000
July 1988	1.535		24.000
August 1988	3.026		24.000
September 1988	2.817		24.000
October 1988	3.974		24.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
November 1988	0.713	1.045	24.000
December 1988	0.000	1.045	24.000
January 1989	0.000	1.045	24.000
February 1989	0.000	1.045	24.000
March 1989	0.000	1.005	24.000
April 1989	0.000	1.005	24.000
May 1989	0.000	1.005	24.000
June 1989	0.000	1.005	24.000
July 1989	0.000	0.878	24.000
August 1989	0.000	0.625	24.000
September 1989	0.000	0.391	24.000
October 1989	0.000	0.059	24.000
November 1989	0.000	0.000	24.000
December 1989	0.000	0.000	24.000
January 1990	0.000	0.000	24.000
February 1990	0.000	0.000	24.000
March 1990	0.000	0.000	24.000
April 1990	2.820	0.235	24.000
May 1990	0.716	0.295	24.000
June 1990	0.660	0.350	24.000
July 1990	4.155	0.696	24.000
August 1990	5.729	1.173	24.000
September 1990	1.413	1.291	24.000
October 1990	0.000	1.291	24.000
November 1990	1.970	1.455	24.000
December 1990	0.000	1.455	24.000
January 1991	0.000	1.455	24.000
February 1991	0.000	1.455	24.000
March 1991	0.000	1.455	24.000
April 1991	0.647	1.274	24.000
May 1991	3.387	1.497	24.000
June 1991	1.547	1.571	24.000
July 1991	4.161	1.571	24.000
August 1991	2.748	1.323	24.000
September 1991	4.083	1.545	24.000
October 1991	4.768	1.943	24.000
November 1991	5.800	2.262	24.000
December 1991	4.906	2.671	24.000
January 1992	1.142	2.766	24.000
February 1992	4.228	3.118	24.000
March 1992	6.697	3.676	24.000
April 1992	5.013	4.040	24.000
May 1992	3.781	4.073	24.000
June 1992	5.040	4.364	24.000
July 1992	4.219	4.369	24.000
August 1992	2.626	4.359	24.000
September 1992	0.000	4.018	24.000
October 1992	1.684	3.761	24.000
November 1992	0.000	3.278	24.000
December 1992	0.000	2.869	24.000
January 1993	0.000	2.774	24.000
February 1993	0.886	2.495	24.000
March 1993	2.032	2.107	24.000
April 1993	2.820	1.924	24.000
May 1993	0.148	1.621	24.000
June 1993	7.433	1.821	24.000
July 1993	2.077	1.642	24.000
August 1993	0.000	1.423	24.000
September 1993	3.253	1.695	24.000
October 1993	3.913	1.880	24.000
November 1993			24.000
December 1993	0.000		24.000
January 1994	0.000		24.000
February 1994	0.000		24.000
March 1994	0.000		24.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
April 1994	0.000		24.000
May 1994	3.439		24.000
June 1994	2.213		24.000
July 1994	0.065		24.000
August 1994	1.432		24.000
September 1994	4.293		24.000
October 1994	5.342		24.000
November 1994	1.027	1.484	24.000
December 1994	0.439	1.521	24.000
January 1995	4.858	1.926	24.000
February 1995	6.614	2.477	24.000
March 1995	4.445	2.847	24.000
April 1995	3.880	3.171	24.000
May 1995	2.445	3.088	24.000
June 1995	3.307	3.179	24.000
July 1995	3.823	3.492	24.000
August 1995	1.741	3.518	24.000
September 1995	4.817	3.561	24.000
October 1995	2.994	3.366	24.000
November 1995	3.272	3.553	24.000
December 1995	6.488	4.057	24.000
January 1996	2.638	3.872	24.000
February 1996	2.796	3.554	24.000
March 1996	2.843	3.420	24.000
April 1996	0.000	3.097	24.000
May 1996	4.903	3.302	24.000
June 1996	6.780	3.591	24.000
July 1996	3.968	3.603	24.000
August 1996	6.334	3.986	24.000
September 1996	6.337	4.113	24.000
October 1996	6.605	4.414	24.000
November 1996	2.303	4.333	24.000
December 1996	1.071	3.881	24.000
January 1997			24.000
February 1997	3.576		24.000
March 1997	0.815		24.000
April 1997	3.367		24.000
May 1997	1.146		24.000
June 1997	0.075		24.000
July 1997	0.000		24.000
August 1997	3.267		24.000
September 1997	4.180		24.000
October 1997	5.471		24.000
November 1997	0.367		24.000
December 1997	0.000		24.000
January 1998	0.000	1.855	24.000
February 1998	4.457	1.929	24.000
March 1998	3.774	2.175	24.000
April 1998	0.000	1.895	24.000
May 1998	0.000	1.799	24.000
June 1998	0.443	1.830	24.000
July 1998	0.000	1.830	24.000
August 1998	3.116	1.817	24.000
September 1998	2.033	1.638	24.000
October 1998	1.135	1.277	24.000
November 1998	2.283	1.437	24.000
December 1998	0.000	1.437	24.000
January 1999	1.110	1.529	24.000
February 1999	0.000	1.158	24.000
March 1999	0.690	0.901	24.000
April 1999	0.593	0.950	24.000
May 1999	5.935	1.445	24.000
June 1999	5.556	1.871	24.000
July 1999	6.168	2.385	24.000
August 1999	0.327	2.153	24.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
September 1999	1.103	2.075	24.000
October 1999	4.158	2.327	24.000
November 1999	4.648	2.524	24.000
December 1999	0.247	2.545	24.000
January 2000	0.295	2.477	24.000
February 2000	2.115	2.653	24.000
March 2000	4.147	2.941	24.000
April 2000	3.051	3.146	24.000
May 2000	4.962	3.065	24.000
June 2000	3.640	2.905	24.000
July 2000	1.845	2.545	24.000
August 2000	1.569	2.648	24.000
September 2000	1.426	2.675	24.000
October 2000	1.019	2.414	24.000
November 2000	0.003	2.027	24.000
December 2000	2.706	2.231	24.000
January 2001	2.708	2.433	24.000
February 2001	2.506	2.465	24.000
March 2001	3.050	2.374	24.000
April 2001	1.496	2.244	24.000
May 2001	1.770	1.978	24.000
June 2001	3.570	1.972	24.000
July 2001	3.178	2.083	24.000
August 2001	2.407	2.153	24.000
September 2001	3.582	2.333	24.000
October 2001	2.166	2.428	24.000
November 2001	1.150	2.524	24.000
December 2001	0.200	2.315	24.000
January 2002	0.516	2.133	24.000
February 2002	0.890	1.998	24.000
March 2002	1.223	1.846	24.000
April 2002	4.056	2.059	24.000
May 2002	1.887	2.069	24.000
June 2002	4.153	2.117	24.000
July 2002	4.463	2.224	24.000
August 2002	4.134	2.368	24.000
September 2002	4.150	2.416	24.000
October 2002	2.609	2.453	24.000
November 2002	3.624	2.659	24.000
December 2002	3.409	2.926	24.000
January 2003	2.777	3.115	24.000
February 2003	1.684	3.181	24.000
March 2003	3.088	3.336	24.000
April 2003	3.309	3.274	24.000
May 2003	4.486	3.490	24.000
June 2003	4.164	3.491	24.000
July 2003	2.175	3.301	24.000
August 2003	3.130	3.217	24.000
September 2003	4.224	3.223	24.000
October 2003	4.049	3.343	24.000
November 2003	1.946	3.203	24.000
December 2003	0.351	2.949	24.000
January 2004	0.338	2.745	24.000
February 2004	0.399	2.638	24.000
March 2004	0.268	2.403	24.000
April 2004	0.407	2.161	24.000
May 2004	0.329	1.815	24.000
June 2004	1.346	1.580	24.000
July 2004	2.870	1.638	24.000
August 2004	3.376	1.658	24.000
September 2004	3.865	1.629	24.000
October 2004	4.440	1.661	24.000
November 2004	2.843	1.736	24.000
December 2004	1.118	1.800	24.000
January 2005	0.960	1.852	24.000

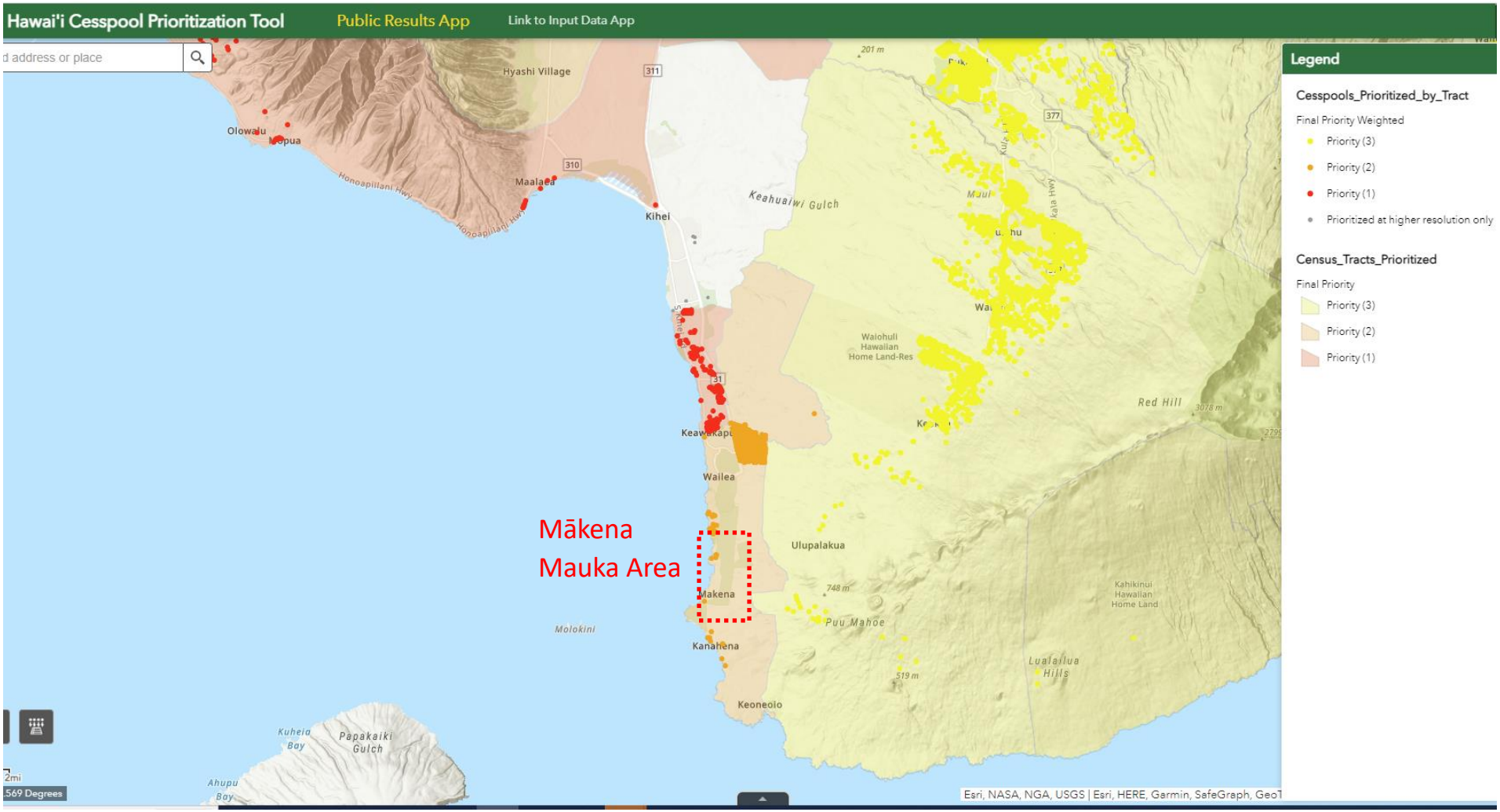
Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
February 2005	1.178	1.917	24.000
March 2005	1.396	2.011	24.000
April 2005	1.107	2.069	24.000
May 2005	3.748	2.354	24.000
June 2005	4.492	2.616	24.000
July 2005	3.468	2.666	24.000
August 2005	4.323	2.745	24.000
September 2005	3.333	2.701	24.000
October 2005	1.464	2.453	24.000
November 2005	0.980	2.297	24.000
December 2005	1.013	2.289	24.000
January 2006	0.969	2.289	24.000
February 2006	1.008	2.275	24.000
March 2006	0.982	2.241	24.000
April 2006	1.005	2.232	24.000
May 2006	1.343	2.032	24.000
June 2006	4.329	2.018	24.000
July 2006	4.524	2.106	24.000
August 2006	4.192	2.095	24.000
September 2006	4.535	2.195	24.000
October 2006	3.274	2.346	24.000
November 2006	1.286	2.372	24.000
December 2006	1.429	2.406	24.000
January 2007	2.093	2.500	24.000
February 2007	2.707	2.642	24.000
March 2007	2.785	2.792	24.000
April 2007	3.880	3.031	24.000
May 2007	3.527	3.213	24.000
June 2007	3.825	3.171	24.000
July 2007	2.578	3.009	24.000
August 2007	3.773	2.974	24.000
September 2007	3.305	2.872	24.000
October 2007	3.040	2.852	24.000
November 2007	3.716	3.055	24.000
December 2007	1.280	3.042	24.000
January 2008	0.672	2.924	24.000
February 2008	1.080	2.788	24.000
March 2008	4.380	2.921	24.000
April 2008	4.114	2.941	24.000
May 2008	3.997	2.980	24.000
June 2008	4.195	3.011	24.000
July 2008	3.879	3.119	24.000
August 2008	4.670	3.194	24.000
September 2008	4.757	3.315	24.000
October 2008	4.364	3.425	24.000
November 2008	4.429	3.485	24.000
December 2008	4.331	3.739	24.000
January 2009	1.745	3.828	24.000
February 2009	1.251	3.843	24.000
March 2009	1.064	3.566	24.000
April 2009	1.363	3.337	24.000
May 2009	4.256	3.359	24.000
June 2009	4.814	3.410	24.000
July 2009	4.643	3.474	24.000
August 2009	3.183	3.350	24.000
September 2009	4.427	3.323	24.000
October 2009	4.341	3.321	24.000
November 2009	2.941	3.197	24.000
December 2009	2.893	3.077	24.000
January 2010	4.336	3.293	24.000
February 2010	3.534	3.483	24.000
March 2010	2.175	3.576	24.000
April 2010	1.114	3.555	24.000
May 2010	3.943	3.529	24.000
June 2010	4.151	3.474	24.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
July 2010	4.280	3.443	24.000
August 2010	4.421	3.546	24.000
September 2010	4.271	3.533	24.000
October 2010	4.315	3.531	24.000
November 2010	2.543	3.498	24.000
December 2010	4.283	3.614	24.000
January 2011	2.411	3.453	24.000
February 2011	4.273	3.515	24.000
March 2011	3.074	3.590	24.000
April 2011	4.276	3.853	24.000
May 2011	4.581	3.907	24.000
June 2011	4.529	3.938	24.000
July 2011	4.079	3.921	24.000
August 2011	4.395	3.919	24.000
September 2011	4.327	3.924	24.000
October 2011	4.628	3.950	24.000
November 2011	4.478	4.111	24.000
December 2011	3.032	4.007	24.000
January 2012	3.090	4.064	24.000
February 2012	3.275	3.980	24.000
March 2012	2.028	3.893	24.000
April 2012	1.204	3.637	24.000
May 2012	3.002	3.506	24.000
June 2012	4.231	3.481	24.000
July 2012	4.556	3.520	24.000
August 2012	4.266	3.510	24.000
September 2012	3.445	3.436	24.000
October 2012	3.921	3.377	24.000
November 2012	3.570	3.302	24.000
December 2012	3.707	3.358	24.000
January 2013	0.926	3.178	24.000
February 2013	0.928	2.982	24.000
March 2013	3.037	3.066	24.000
April 2013	4.457	3.337	24.000
May 2013	4.359	3.450	24.000
June 2013	4.149	3.443	24.000
July 2013	4.449	3.435	24.000
August 2013	4.100	3.421	24.000
September 2013	4.208	3.484	24.000
October 2013	4.432	3.527	24.000
November 2013	4.354	3.592	24.000
December 2013	4.357	3.646	24.000
January 2014	2.712	3.795	24.000
February 2014	2.024	3.886	24.000
March 2014	2.509	3.842	24.000
April 2014	0.460	3.509	24.000
May 2014	1.853	3.301	24.000
June 2014	4.308	3.314	24.000
July 2014	3.752	3.256	24.000
August 2014	3.591	3.213	24.000
September 2014	4.463	3.235	24.000
October 2014	4.130	3.209	24.000
November 2014	4.296	3.205	24.000
December 2014	1.362	2.955	24.000
January 2015	0.922	2.806	24.000
February 2015	0.914	2.713	24.000
March 2015	0.887	2.578	24.000
April 2015	0.902	2.615	24.000
May 2015	2.126	2.638	24.000
June 2015	2.072	2.451	24.000
July 2015	1.034	2.225	24.000
August 2015	0.972	2.007	24.000
September 2015	2.697	1.859	24.000
October 2015	0.915	1.592	24.000
November 2015	2.451	1.438	24.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
December 2015	0.875	1.397	24.000
January 2016	0.860	1.392	24.000
February 2016	0.852	1.387	24.000
March 2016	0.825	1.382	24.000
April 2016	0.780	1.372	24.000
May 2016	0.816	1.262	24.000
June 2016	0.831	1.159	24.000
July 2016	0.811	1.140	24.000
August 2016	0.808	1.127	24.000
September 2016	0.746	0.964	24.000
October 2016	0.753	0.951	24.000
November 2016	0.732	0.807	24.000
December 2016	0.726	0.795	24.000
January 2017	0.773	0.788	24.000
February 2017	0.746	0.779	24.000
March 2017	0.788	0.776	24.000
April 2017	0.788	0.776	24.000
May 2017	0.818	0.777	24.000
June 2017	0.853	0.778	24.000
July 2017	0.863	0.783	24.000
August 2017	0.820	0.784	24.000
September 2017	1.080	0.812	24.000
October 2017	0.802	0.816	24.000
November 2017	0.730	0.816	24.000
December 2017	0.712	0.814	24.000
January 2018	0.749	0.812	24.000
February 2018	0.742	0.812	24.000
March 2018	0.833	0.816	24.000
April 2018	0.808	0.817	24.000
May 2018	0.802	0.816	24.000
June 2018	0.602	0.795	24.000
July 2018	0.640	0.777	24.000
August 2018	0.665	0.764	24.000
September 2018	0.839	0.744	24.000
October 2018	0.824	0.745	24.000
November 2018	0.846	0.755	24.000
December 2018	1.025	0.781	24.000
January 2019	0.828	0.788	24.000
February 2019	0.819	0.794	24.000
March 2019	0.787	0.790	24.000
April 2019	0.856	0.794	24.000
May 2019	0.941	0.806	24.000
June 2019	1.035	0.842	24.000
July 2019	1.070	0.878	24.000
August 2019	0.956	0.902	24.000
September 2019	0.935	0.910	24.000
October 2019	0.894	0.916	24.000
November 2019	0.915	0.922	24.000
December 2019	0.870	0.909	24.000
January 2020	0.881	0.913	24.000
February 2020	0.841	0.915	24.000
March 2020	0.800	0.916	24.000
April 2020	0.925	0.922	24.000
May 2020	0.946	0.922	24.000
June 2020	1.049	0.923	24.000
July 2020	1.120	0.928	24.000
August 2020	1.097	0.939	24.000
September 2020	1.139	0.956	24.000
October 2020	1.210	0.983	24.000
November 2020	0.985	0.988	24.000
December 2020	0.936	0.994	24.000
January 2021	0.897	0.995	24.000
February 2021	0.924	1.002	24.000
March 2021	0.870	1.008	24.000
April 2021	0.960	1.011	24.000

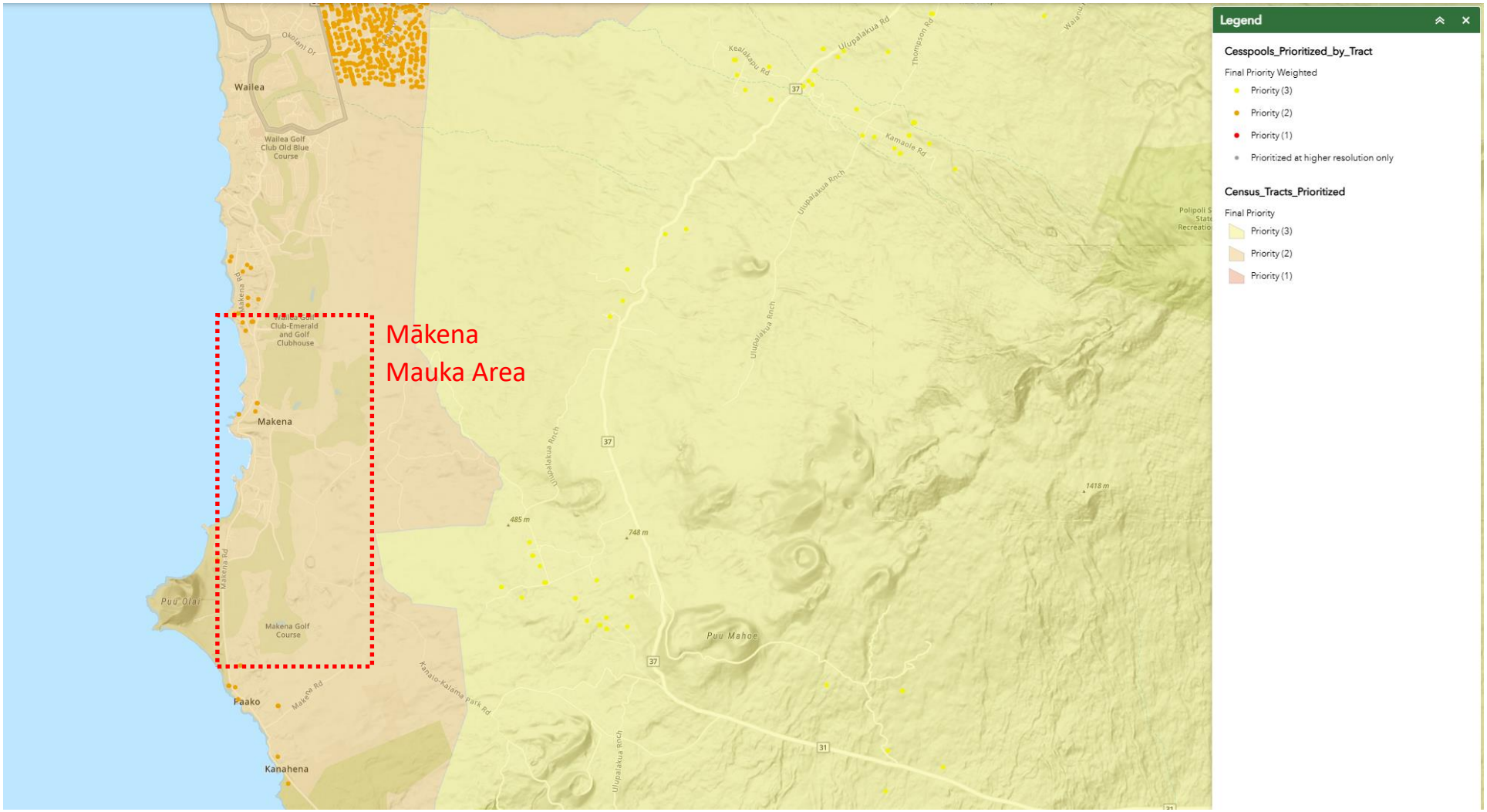
Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
May 2021	0.975	1.013	24.000
June 2021	1.183	1.025	24.000
July 2021	1.158	1.028	24.000
August 2021	1.111	1.029	24.000
September 2021	1.123	1.028	24.000
October 2021	0.652	0.981	24.000
November 2021	0.674	0.955	24.000
December 2021	0.602	0.927	24.000
January 2022	0.634	0.905	24.000
February 2022	0.696	0.886	24.000
March 2022	0.744	0.876	24.000
April 2022	0.604	0.846	24.000
May 2022	0.644	0.819	24.000
June 2022	0.702	0.779	24.000
July 2022	0.698	0.740	24.000
August 2022	0.734	0.709	24.000
September 2022	0.710	0.674	24.000
October 2022	0.680	0.677	24.000
November 2022	0.807	0.688	24.000
December 2022	0.781	0.703	24.000
January 2023	0.849	0.721	24.000
February 2023	0.758	0.726	24.000
March 2023	0.752	0.727	24.000
April 2023	0.613	0.727	24.000
May 2023	0.638	0.727	24.000
June 2023	0.724	0.729	24.000
July 2023	0.672	0.726	24.000
August 2023	0.726	0.726	24.000
September 2023	0.702	0.725	24.000
October 2023	0.771	0.733	24.000
November 2023	0.702	0.724	24.000
December 2023	0.594	0.708	24.000
January 2024	0.616	0.689	24.000
February 2024	0.691	0.683	24.000
March 2024	0.650	0.675	24.000
April 2024	0.678	0.680	24.000
May 2024	0.872	0.700	24.000
June 2024	0.923	0.716	24.000
July 2024	0.950	0.740	24.000
August 2024	0.881	0.753	24.000
September 2024	0.949	0.773	24.000
October 2024	0.949	0.788	24.000
November 2024	0.908	0.805	24.000
December 2024	0.972	0.837	24.000
January 2025	0.005	0.786	24.000

APPENDIX J



Source: Hawai'i Cesspool Prioritization Tool

https://seagrant.soest.hawaii.edu/app/



Source: **Hawai'i Cesspool Prioritization Tool**

https://seagrant.soest.hawaii.edu/app/

APPENDIX K

STATE OF HAWAI'I
DEPARTMENT OF HEALTH
July 2002 (Version 6)

GUIDELINES APPLICABLE TO GOLF COURSES IN HAWAI'I

The State Department of Health recommends the following guidelines for all golf courses in Hawai`i to promote, protect, and enhance environmental quality and public health. These recommendations cover measures that could prevent groundwater and surface water pollution, soil contamination, chemical spills, noise and solid waste nuisances, and unsafe exposure to applied chemicals. Under certain situations, a state or county regulation may be necessarily applicable to a given activity, and such a regulation would require mandatory compliance. However, the intent of these guidelines is to voluntarily foster environmental protection and safety. Thank you for supporting these guidelines and caring about Hawai`i.

1. A groundwater or soil water monitoring plan for the purpose of preventing or minimizing groundwater contamination should be established with the following components:

    a. Baseline groundwater quality;

    b. Monitoring locations consisting of monitoring wells or lysimeters, or combination of both;

    c. Routine groundwater and/or soil water monitoring at frequencies such as quarterly, semiannually, or annually depending on the use of chemicals and the detection of contaminants;

    d. A list of chemicals and fertilizers that will be or have been used that may affect soil or groundwater adversely, and the analyses for such contaminants;

    e. Recordkeeping of monitoring results and a system of tracking trends in order to prevent, minimize, or mitigate occurrences of contamination;

    f. A procedure to notify all affected parties and the Department of Health of occurrences of contamination that pose, or may pose, a threat to public health or the environment.

    g. Availability of monitoring data to any interested person.

2. A surface water monitoring plan, if applicable, for the purpose of preventing or minimizing surface water contamination should be established using the principles of item No. 1.

3. If the golf course uses recycled water (treated wastewater) for irrigation, please refer to the Department of Health's Guidelines for the Treatment and Use of Recycled Water, May 15, 2002, for recycled water requirements. Information about this subject may be obtained from the Department's Wastewater Branch at 586-4294 (Honolulu).

4. The use of an above-ground storage tank with applicable safety considerations for petroleum products, used for fueling golf carts, maintenance vehicles, or emergency generators, should be preferred over an underground storage tank in order to easily detect leaks and minimize the risk of soil and groundwater contamination resulting from a leaking storage tank. Information about underground storage tanks may be obtained from the Department's Solid and Hazardous Waste Branch at 586-4226 (Honolulu).

5. Buildings used to store fertilizers, pesticides, algicides, fungicides, herbicides, and other chemicals especially in liquid form should be designed purposely for the containment and recovery of a catastrophic spill or leak of contents. An early warning system for spill or leak detection is advantageous.

6. Noise and dust from maintenance or construction activities should not disturb neighbors. Maintenance or construction activities should be scheduled and conducted accordingly.

7. Solid wastes should be managed without creating a nuisance. Furthermore, all green waste generated by the golf course should be reused on-site. Shredding and composting are activities that precede the reuse of green waste as a soil conditioner or a ground cover for weed control. Space and equipment should be provided to accomplish these activities. Additionally, where practicable, locally produced compost and soil amendments should be used whenever available.

8. Chemicals should be handled and applied according to instructions, and offsite drift during application should not occur. Methods of application and weather conditions should be chosen to optimize success.

9. A Best Management Practices (BMP) plan should be made for the golf course. The BMP plan functions as a hands-on environmental and worker safety maintenance manual that describes in plain English the elements and procedures for irrigation, chemical use, processing and reuse of green wastes, minimizing or preventing runoff, soil erosion and nuisance conditions, and sustaining worker safety. Use of the BMP should prevent the occurrence or recurrence of environmental or safety problems. The BMP should be available to any interested person.

10. Agencies or organizations such as the State Department of Agriculture, the Federal National Resource Conservation Service, and the Golf Course Superintendents Association of America may provide ideas or practices that would help to achieve the intent of these guidelines. Inquiries to these sources of information are advantageous.

The Department of Health appreciates your cooperation to preserve and protect environmental quality in Hawai`i. Questions about these guidelines may be directed to the Groundwater Pollution Control Section of the Safe Drinking Water Branch at 586-4258 (Honolulu). Direct toll free calls can be made from Kaua`i: 274-3141, ext. 64258; Maui: 984-2400, ext. 64258; Big Island: 974-4000, ext. 64258; Molokai and Lana`i: 1-800-468-4644, ext. 64258.

APPENDIX L

Water Use Permit

Report Parameters

WUP Type:	Water Use Permit, Administrative Modification, Reservation, Transfer, CWRM Decision and Orders, Court Orders, Other
Island:	Maui
Applicant:	All
Well # Prefix:	All
Date:	All
Issued Date:	All
Date Accepted:	All
Aquifer Sector:	All
Aquifer:	60102 Iao
Source or End Use TMK:	All
Aquifer Type:	Alluvial, Basal, Deep Fresh Water, Dike, Perched, Not Specified
Water Quality:	Fresh, Brackish, Potable, Non-Potable, Not Specified
Not	Salt
Proposed Use:	All

WUP = Water Use Permit, 12-MAV = 12 month moving average, Diff = WUP-12-MAV, mgd = million gallons per day

Island of Maui

Aquifer System Ground Water Management Area: 60102 Iao

Sustainable Yield (mgd): 20

Wup No	Approved	Permittee	Well No	Well Name	WUP (mgd)	12-MAV (mgd)	Diff (mgd)	Date Last Reported
00691	06/10/2010	Hawaiian Commercial & Sugar Co. (HC&S)	6-5330-002	Iao Tunnel (Puako)	0.100	0.098	0.002	09/30/2023
00704	02/15/2006	Living Water Foundation, LLC	6-5531-001	Living Waters #1	0.020	0.001	0.019	05/31/2019
00815	02/15/2006	Department of Water Supply Maui, MDWS	6-5330-009	Mokuhau 1	1.500			07/31/2023
00825	02/18/2009	John Varel Trust	6-5631-007	Varel	0.003	0.038	-0.035	07/31/2023
00847	02/18/2009	Department of Water Supply Maui, MDWS	6-5330-011	Mokuhau 3	2.353	0.150	2.203	07/31/2023
00853	02/18/2009	Bryan Sarasin	6-5631-008	Sarasin	0.003	0.000	0.003	07/31/2023
00920	06/10/2010	Department of Water Supply Maui, MDWS	6-5332-002	Iao Tunnel (Kepaniwai)	1.610	1.559	0.051	07/31/2023
00921	06/10/2010	Department of Water Supply Maui, MDWS	6-5332-005	Kepaniwai	0.791	0.646	0.145	07/31/2023
00980	06/06/2013	Department of Water Supply Maui, MDWS	6-5430-001	Waiehu Heights 1	0.000	0.000	0.000	07/31/2023
00981	06/06/2013	Department of Water Supply Maui, MDWS	6-5430-002	Waiehu Heights 2	1.000	1.345	-0.345	07/31/2023
01016	01/31/2007	Department of Water Supply Maui, MDWS	6-5230-005	Wailuku 2	1.852	0.299	1.553	07/31/2023
01027	02/18/2009	Department of Water Supply Maui, MDWS	6-5230-003	Iao Tank Site	2.083	1.515	0.568	07/31/2023
01028	02/18/2009	Department of Water Supply Maui, MDWS	6-5230-004	Wailuku 1	2.190	1.368	0.822	07/31/2023
01041	02/15/2006	Department of Water Supply Maui, MDWS	6-5431-002	Waihee 1	6.800	2.625	-0.555	07/31/2023
			6-5431-003	Waihee 2		2.218		07/31/2023
			6-5431-004	Waihee 3		2.513		07/31/2023
01043	05/02/2017	Department of Water Supply Maui, MDWS	6-5131-001	Waikapu Tank Site	1.285	1.106	0.179	07/31/2023
Summary for Iao (17 detail records)				**Total:**	21.590	15.480	6.110	
				SY Available:	-1.590			

tunnel sources do not count against SY

APPENDIX M

WATER RESOURCE BULLETIN

COMMISSION ON WATER RESOURCE MANAGEMENT | KE KAHUWAI PONO
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA ʻOIHANA KUMUWAIWAI ʻĀINA

JOSH GREEN, M.D.
GOVERNOR | KE KIAʻĀINA

DAWN N.S. CHANG
CHAIRPERSON

KENNETH S. FINK, M.D., MGA, MPH
AURORA KAGAWA-VIVIANI, PH.D.
WAYNE K. KATAYAMA
PAUL J. MEYER
LAWRENCE H. MIIKE, M.D., J.D.
V.R. HINANO RODRIGUES

CIARA W.K. KAHAHANE
DEPUTY DIRECTOR

JANUARY 2025

The **Water Resource Bulletin** is published monthly to provide timely notice of important events under the purview of the Commission. Tentative Commission agenda dates should be confirmed with staff. Recent approvals are also listed. For inquiries about any item listed, please call 587-0225. **For more information, see our website at: http://dlnr.hawaii.gov/cwrm/**

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Effective August 1, 2009, the monthly bulletin will only be available on our website at http://dlnr.hawaii.gov/cwrm/.
To receive an email notice when the bulletin is posted on the Commission website please notify the Commission at 808.587.0234 or dlnr.cwrm@hawaii.gov. To continue to receive the bulletin by postal mail, please submit a request in writing to the Commission at P.O. Box 621, Honolulu, HI 96809.

A. New Notices/Announcements

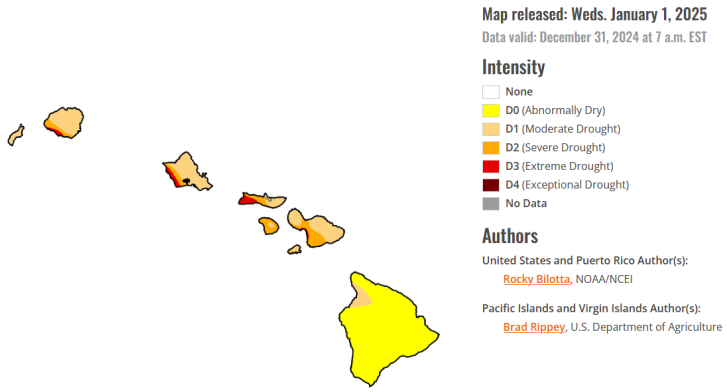
Drought Updates
The Wildfire & Drought LOOKOUT! campaign kicked off June 4, 2024 on Maui (https://dlnr.hawaii.gov/blog/2024/06/04/nr-66/). This comprehensive public information campaign to raise awareness about wildfire, drought, and water conservation, For more information please visit the Hawaii Wildfire Management Organization website: https://www.hwmo.org/lookout. Also check out water conservation and fire prevention tips in DLNR's social media posts https://www.instagram.com/hawaiidlnr/ and https://www.facebook.com/HawaiiDLNR/

See the NOAA Drought Information Statement for the Hawaiian Islands, valid November 15, 2024, here: https://www.weather.gov/media/hfo/DGT/DGT_HFO_11152024.pdf

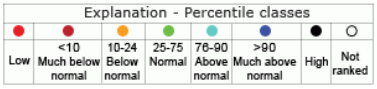
The NWS issued its Hawaiian Islands 2024-2025 Wet Season Outlook. http://weather.gov/media/hfo/MediaAdvisory-2024-2025HawaiiWetSeasonOutlook.pdf

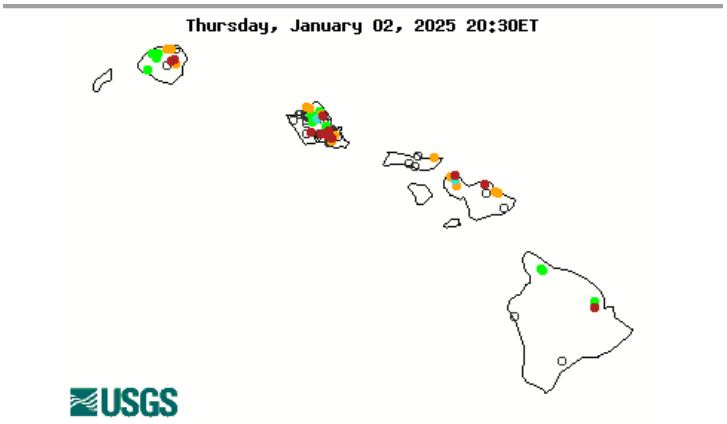
County of Maui: The County of Maui Department of Water Supply Water Shortage declaration: Stage 1 Water Shortage for Central Maui. The Central Maui service area includes Waiheʻe, Waiehu, Wailuku, Kahului, Spreckelsville, Pāʻia, Kūʻau, Māʻalaea, Kīhei, Wailea and Mākena. https://www.mauicounty.gov/CivicAlerts.aspx?AID=15800. Stage 1 Water Shortage is still in effect for West Maui. The West Maui service area includes Lahaina, Kaanapali, Kahana, Mahinahina, Napili-Honokowai, and Honokohau. https://www.mauicounty.gov/CivicAlerts.aspx?AID=15799 The Department is asking all customers throughout West, Central and South Maui to follow all water use restrictions to conserve water supply and protect our water resources. Stage 1 Water Shortage in Upcountry ended September 3, 2024. https://www.mauicounty.gov/CivicAlerts.aspx?AID=15798

The **U.S. Drought Monitor (USDM)** is a map released every Thursday, showing drought intensity across the U.S. and its territories. The map uses six classifications: normal conditions, abnormally dry (D0), showing areas that may be going into or are coming out of drought, and four levels of drought: moderate (D1), severe (D2), extreme (D3) and exceptional (D4). The weekly map for Hawai'i can be viewed online at: https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?HI



The **U.S. Geological Survey (USGS)** maintains a summary map of daily mean streamflow conditions at its network of real-time gaging stations statewide. The current map, along with station-specific information on all streamflow, precipitation (rainfall), reservoir, and groundwater stations monitored by the USGS, can be viewed at: https://waterdata.usgs.gov/hi/nwis/rt.





The colored dots on this map depict streamflow conditions as a percentile, which is computed from the period of record for the current day of the year. Only stations with at least 30 years of record are used. The gray circles indicate other stations that were not ranked in percentiles either because they have fewer than 30 years of record or because they report parameters other than streamflow. Some stations, for example, measure stage only.

Streams across Hawai'i are experiencing record low-flows as normally wet conditions observed in December have eluded the islands. Streams that support traditional kalo cultivation, habitat for native freshwater species, and instream hydropower production are experiencing critically low-flows. Conditions are affecting the availability of water for drinking water supply on Hawai'i and Maui as well as irrigation water supply on Hawai'i, Maui, Moloka'i, O'ahu, and Kaua'i.

B. Upcoming Meetings and Hearings*

The Commission on Water Resource Management's monthly meeting agenda and staff submittals are available on our website at http://dlnr.hawaii.gov/cwrm/.

Subscribe to the Commission's YouTube Channel to follow livestream events including monthly Commission meetings and public hearings. https://www.youtube.com/user/dlnrcwrm/

Follow the Commission's Vimeo Channel to view videos including online Commission meetings, public hearings, limited meetings, and more. https://vimeo.com/cwrm

Date	Time	Location	Type
January 28, 2025	9:00 am	Online Meeting: Live Stream via YouTube and DLNR Boardroom, 1st Floor 1151 Punchbowl Street Honolulu, HI 96813	Regular Meeting
February 18, 2025	9:00 am	Online Meeting: Live Stream via YouTube and DLNR Boardroom, 1st Floor 1151 Punchbowl Street Honolulu, HI 96813	Regular Meeting

Commission meetings can be viewed via live stream at https://www.youtube.com/user/dlnrcwrm/

***Meeting dates, times, & locations should be confirmed with staff.**

C. Petitions for Reservation of Water

- **CWRM.5641.6** – The State Department of Hawaiian Home Lands has filed a petition for reservation of 11,177,500 gallons per day originating from the watershed of, and tributaries to, the East Maui streams diverted by the East Maui Irrigation system for non-potable water use in Pūlehunui and Kēōkea-Waiohuli Hawaiian Home Lands.

D. Designation of Water Management Areas

- **Lahaina Aquifer Sector Area:** The Chair of the Commission on Water Resource Management has recommended to designate the Lahaina Aquifer Sector Area (ASA), Maui, as a Surface and Ground Water Management Area under Section 174C-41. The proposed Lahaina ASA Surface Water Management Areas include the Honokōhau (6014), Honolua (6013), Honokahua (6012), Kahana (6011), Honokōwai (6010), Wahikuli (6009), Kahoma (6008), Kaua'ula (6007), Launiupoko (6006), Olowalu (6005), and Ukumehame (6004) surface water hydrologic units. The

proposed Lahaina ASA Ground Water Management Areas include the Honokōhau (60201), Honolua (60202), Honokōwai (60203), Launiupoko (60204), Olowalu (60205), Ukumehame (60206) ground water hydrologic units. On June 14, 2022, the Commission accepted the Findings of Fact and Chairperson's Recommendation to designate the Lahaina Aquifer Sector Area as both a Surface Water and Ground Water Management Area. A public notice was issued on July 29, 2022, and published in The Maui News issue of August 6, 2022.

Applications for water use permits to continue an existing use of surface or ground water had to be filed with the Commission within a period of one year from the effective date of designation, that is between August 6, 2022 (the date this Public Notice is published) and no later than August 7, 2023 (as August 5, 2023 fell on a Saturday).

The Commission is currently reviewing filed water use permit applications for both existing and new uses. Applications for new uses of both ground or surface water may continue to be filed with the Commission. More information is available online at: https://dlnr.hawaii.gov/cwrm/groundwater/gwma/lahaina/.

E. Contested Case Hearings Pending at the Commission:

- **CCH-MA15-01** – Surface Water Use Permit Applications, Nā Wai ʻEhā Surface Water Management Area, Waiheʻe, Waiehu, ʻĪao, Waikapū Streams, Maui, Hawaiʻi. On January 28, 2015, the Commission determined that a contested case hearing is required to hear and determine all surface water use permits applications in the Nā Wai ʻEhā Surface Water Management Areas, Maui, and delegated authority to the Chairperson to appoint a Hearings Officer. The Hearings Officer issued his Proposed Findings of Fact, Conclusions of Law and Decision and Order on November 1, 2017. The Commission issued its Findings of Fact, Conclusions of Law, and Decision and Order on June 28, 2021, along with an Executive Summary. On June 30, 2021, the Commission issued an Errata to the Findings of Fact, Conclusions of Law, and Decision and Order. On October 22 and 25, 2021, MMK Maui, LP, Hui O Na Wai Eha and Maui Tomorrow Foundation, Inc. and Office of Hawaiian Affairs filed an Appeal to the Commission's Decision. On October 25 and 28, 2021, Mahi Pono, LLC and Wailuku Water Company, LLC filed a Cross-Appeal. The deadline to file the Record on Appeal with the Supreme Court of the State of Hawaii is March 21, 2022. On March 14, 2022 the Supreme Court granted the Commission's request for an extension of time to transmit the Record on Appeal to April 20, 2022. Oral arguments in the State Supreme Court for SCOT-21-0000581 (Case Number CCH-MA 15-01) were heard on December 5, 2023. The Supreme Court issued its Opinion on June 20, 2024. The Opinion and contested case information are available online at http://dlnr.hawaii.gov/cwrm/newsevents/cch/cch-ma15-01/. The contested case has been remanded back to the Commission for further proceedings.

- **CCH-MA20-01** – On June 16, 2020, the Commission granted a petition for a contested case hearing filed by Wailuku Water Company, LLC to enter into a contested case hearing on the Issuance of Written Notice of Violation for Enforcement Against Waste, and Recommendation to Impose Fines Against Wailuku Water Company, LLC, Owner/Operator of Waiheʻe Ditch, in Response to HRS §174C-13, Citizen Complaint filed by Hui o Nā Wai ʻEhā Alleging Waste by Wailuku Water Company at Paleʻaʻahu Gulch, Nā Wai ʻEhā Surface Water Management Area, Maui, TMK No. (2) 3-6-004:003.

- **CCH-OA20-04** – On November 17, 2020, the Commission granted a petition for contested case hearing from Protect Mokulēʻia Hui to enter into contested case for GWUPA 1088 for Dillingham Ranch for modified withdrawals of ground water from the Mokulēʻia Aquifer System Area. The Contested Case Hearing is currently held in abeyance and a new water use permit application quantity will be considered.

Well Construction and Pump Installation Permit Applications (WCPIPA) Bulletin

Hawaii

Aquifer Sector	Aquifer System	TMK	Well No	Well Name	Applicant	Permit Type	-Proposed Use- Type	mgd	-Pump Capacity- gpm	mgd	Accept	90 Day Deadline	LOA Issued	Permit(s) Approved
SE.Mauna Loa	Kalae	(3) 9-3-004:027	8-0240-001	Kau Citrus 1	Morton Bassan, Jr.	Both	IRR		250	0.360	10/31/1995	01/29/1996		02/07/1996
Kilauea	Pahoa	(3) 1-5-056:001	8-3686-001	McDonald	Jane McDonald	Both	IRR		30	0.043	03/11/1997	06/09/1997		04/18/1997
Kohala	Mahukona	(3) 5-7-001:020	8-6953-002	Pao'o-Gordy	Dennis D. Gordy	Both	UNU			0.864	05/07/1999	08/05/1999		06/01/1999
Kohala	Mahukona	(3) 5-9-006:011	8-6451-004	Kohala Estates Lot 6	Gerry Reilly	Both	IRR	0.005	8	0.012	06/06/2000	09/04/2000		07/27/2000
E. Mauna Kea	Hakalau	(3) 3-4-003:056	8-5711-002	Letterman 2	Mary K. Letterman	Both	DOM	0.000	20	0.029	04/20/2001	07/19/2001		02/27/2002
NW.Mauna Loa	Anaehoomalu	(3) 6-8-002:027	8-5548-001	Parker 1	West Hawaii Water Co.	Both	IRR	0.720	600	0.864	06/24/2001	09/22/2001		07/18/2001
Kilauea	Pahoa	(3) 1-5-028:144	8-3587-005	Bazin	Barney Bazin	Both	DOM	0.001	25	0.036	05/01/2002	07/30/2002		06/12/2002
Kilauea	Pahoa	(3) 1-5-062:096	8-3787-004	Gudrun	Gudrun Valdis Maurins Family Trust	Both	DOM	0.001	15	0.022	10/03/2002	01/01/2003		11/18/2002
Kilauea	Pahoa	(3) 1-5-054:049	8-3687-007	Noni Kai	Patrick T Fix	Both	DOM	0.001	25	0.036	07/23/2003	10/21/2003		11/14/2003
Kilauea	Pahoa	(3) 1-5-026:226	8-3487-002	Luawai	Patrick St. Laurence	Both	DOM	0.002	20	0.029	12/09/2003	03/08/2004		02/27/2004
NE.Mauna Loa	Keaau	(3) 1-5-057:088	8-3687-009	Hale O Kai	Bennet Taylor Jr.	Both	DOM	0.000	15	0.022	12/09/2003	03/08/2004		02/27/2004
Kilauea	Pahoa	(3) 1-5-051:146	8-3687-011	Webb 2	Charles Webb	Both	DOM	0.000	20	0.029	04/20/2004	07/19/2004		06/14/2004
Kilauea	Pahoa	(3) 1-5-054:100	8-3687-012	That's a deep subject	Tom King	Both	DOM	0.001	20	0.029	05/19/2004	08/17/2004		07/02/2004
NW.Mauna Loa	Anaehoomalu	(3) 6-8-033:049	8-5652-001	Borkan	Bill Borkan	Both	OTH	0.288	200	0.288	05/20/2004	08/18/2004		06/30/2004
Kilauea	Pahoa	(3) 1-5-008:001	8-3088-001	Makuu	Department of Hawaiian Home Lands, East Hawaii, DHHL	Both	UNU	1.000	700	1.008	05/26/2004	08/24/2004	02/14/2006	06/30/2004
Kilauea	Pahoa	(3) 1-5-057:080	8-3687-015	Greenlaw 2	Daniel Greenlaw	Both	DOM	0.000	15	0.022	06/30/2004	09/28/2004		08/27/2004
NE.Mauna Loa	Keaau	(3) 1-7-017:128	8-3505-002	Puna Certified Nursery 1	Puna Certified Nursery, Inc.	Both	IRR	0.004	45	0.065	07/01/2004	09/29/2004		08/13/2004
Hualalai	Keauhou	(3) 7-7-026:014	8-3558-001	Keauhou-Robertson	Michael H. Robertson (Wailani Drilling Services Inc)	Both	IRR	0.010	100	0.144	11/08/2004	02/06/2005		01/03/2005
E. Mauna Kea	Onomea	(3) 2-7-039:001	8-4707-001	JJCO	Jack Jackson (JJCO Properties, LLC)	Both	DOM	0.001	30	0.043	11/10/2004	02/08/2005		01/03/2005
Kilauea	Pahoa	(3) 1-5-032:052	8-3586-005	Mika 1	Noi Phanucharas	Both	DOM	0.001	10	0.014	11/15/2004	02/13/2005		01/03/2005
NE.Mauna Loa	Keaau	(3) 1-6-141:012	8-3802-007	Laka	Rulin Xiu	Both	DOM	0.001	60	0.086	11/15/2004	02/13/2005		01/03/2005
Kilauea	Kalapana	(3) 1-2-009:029	8-2484-002	Kalani Kai 2	Kalani Honua	Both	AGRCP	0.017	55	0.079	12/28/2015	03/27/2016		
NE.Mauna Loa	Keaau	(3) 1-6-151:020	8-3703-003	Double D	Louis Anthony Nobriga	Both	INDOTH	0.050	300	0.432	02/21/2017	05/22/2017		
Kilauea	Kalapana	(3) 1-2-014:005	8-2059-001	Clean Water	Tzvi G & Rachel S Kipnis Bradshaw	Both	DOM	0.001	25	0.036	05/18/2018	08/16/2018	07/11/2018	

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Hawaii

Aquifer Sector	Aquifer System	TMK	Well No	Well Name	Applicant	Permit Type	-Proposed Use- Type	mgd	-Pump Capacity- gpm	mgd	Accept	90 Day Deadline	LOA Issued	Permit(s) Approved
Hualalai	Keauhou	(3) 7-5-001:165	8-3957-006	Ota	Natural Energy Laboratory of Hawaii Authority, NELHA	Well	MUNST	0.672	700	1.008	10/18/2018	01/16/2019		
Kilauea	Pahoa	(3) 1-5-010:028	8-3485-001	Remi	Lorraine A Melella	Both	DOM	0.001	25	0.036	02/25/2019	05/26/2019	05/22/2019	
Kilauea	Pahoa	(3) 1-5-030:158	8-3586-131	el158	Emanual Joseph Leonard	Both	DOM	0.001	25	0.036	02/16/2020	05/16/2020	06/04/2020	
Kilauea	Pahoa	(3) 1-5-030:150	8-3586-132	el150	Emanual Joseph Leonard	Both	DOM	0.001	25	0.036	02/16/2020	05/16/2020	06/04/2020	
Kilauea	Pahoa	(3) 1-5-054:169	8-3687-201	el169	Emanual Joseph Leonard	Both	DOM	0.001	25	0.036	02/16/2020	05/16/2020		
Kilauea	Pahoa	(3) 1-5-028:117	8-3587-073	Sun	Dexue Sun	Both	DOM	0.002	25	0.036	05/04/2020	08/02/2020		
Kilauea	Pahoa	(3) 1-5-057:030	8-3687-207	Maciel 3	Charles Allen Maciel	Both	DOM	0.004	25	0.036	05/04/2020	08/02/2020	08/04/2020	
Kilauea	Pahoa	(3) 1-5-054:120	8-3687-209	WBH	Jonathan Santiago-Braga	Both	DOM	0.003	35	0.050	05/04/2020	08/02/2020	09/18/2020	
Kilauea	Pahoa	(3) 1-5-059:019	8-3786-010	Agua Dulce	Andrea Gonzalez-Capilla	Both	DOM	0.000	25	0.036	05/11/2020	08/09/2020	07/06/2020	
Kilauea	Pahoa	(3) 1-4-028:141	8-3282-003	Waa Waa	Pauncer's Trust	Both	DOM	0.004	35	0.050	06/04/2020	09/02/2020	07/21/2020	
Kilauea	Pahoa	(3) 1-5-054:157	8-3687-215	Island Sustenance	Elissa Yamamoto & Dustin Sweeny	Both	DOM	0.001	25	0.036	08/26/2020	11/24/2020	12/24/2020	
Kilauea	Pahoa	(3) 1-5-025:057	8-3486-033	Nitta 2	Frederick Alan Nitta	Both	DOM	0.001	25	0.036	12/14/2020	03/14/2021		
Kilauea	Pahoa	(3) 1-5-060:041	8-3787-032	Fontana	Lori Morrey	Both	DOM	0.004	35	0.050	04/01/2021	06/30/2021		
Hualalai	Kiholo	(3) 7-2-028:020	8-4860-030	KukioMV20	Nisshin Hawaii, Inc.	Both	IRRLA	0.003	25	0.036	10/08/2021	01/06/2022		
SE.Mauna Loa	Naalehu	(3) 9-5-016:036	8-0632-002	Namaste	Robert Taylor (Taylor Built Construction, Inc.)	Both	DOM	0.001	25	0.036	12/21/2022	03/21/2023		
Kilauea	Pahoa	(3) 1-5-031:062	8-3585-012	Source 1	Gold Coast SP LLC	Both	DOM	0.000	25	0.036	07/07/2023	10/05/2023		
Kilauea	Pahoa	(3) 1-5-032:049	8-3586-170	15-1859 Beach Road	Patricia Lynn Sather	Both	DOM	0.001	25	0.036	09/11/2023	12/10/2023		11/10/2024
E. Mauna Kea	Hakalau	(3) 2-9-006:026	8-5307-010	Obi Roschi Pisi	Andrei Burghelea	Both	DOM	0.001	25	0.036	03/14/2024	06/12/2024		
Kilauea	Pahoa	(3) 1-5-031:067	8-3586-175	Ala Heiau	Kermit Johnson	Both	DOM	0.001	25	0.036	04/10/2024	07/09/2024		
Kilauea	Pahoa	(3) 1-5-054:066	8-3687-271	LBB 2024	David Jefferson Calley	Both	DOM	0.001	25	0.036	04/10/2024	07/09/2024		12/03/2024
E. Mauna Kea	Honokaa	(3) 4-5-002:016	8-6527-001	HHL Irrigation	Stephen D Winter	Both	IRROTH	0.003	40	0.058	05/22/2024	08/20/2024		11/10/2024
Kilauea	Pahoa	(3) 1-5-054:143	8-3687-270	Cani 2nd C	Edmond Cani (Edmond & Marsela Cani Trust)	Both	DOM	0.001	25	0.036	06/03/2024	09/01/2024		
Kilauea	Pahoa	(3) 1-5-053:037	8-3687-260	Phase III	Hawaiian Shellfish, LLC	Both	AGRAQ	0.200	250	0.360	06/05/2024	09/03/2024		
NE.Mauna Loa	Hilo	(3) 2-3-036:018	8-4205-001	Da	Justin Clayton (The Food Basket, Inc.)	Both	AGRCP	0.020	45	0.065	07/30/2024	10/28/2024		11/19/2024
Kilauea	Pahoa	(3) 1-5-050:034	8-3587-100	Keaau Point 6th	John D. Lemery (Keaau Point LLC)	Both	DOM	0.001	25	0.036	08/07/2024	11/05/2024		
Kilauea	Pahoa	(3) 1-5-045:008	8-3688-083	Derbyshire 10th	Robert Paul Derdyshire	Both	DOM	0.001	25	0.036	08/07/2024	11/05/2024		

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Hawaii

Aquifer Sector	Aquifer System	TMK	Well No	Well Name	Applicant	Permit Type	-Proposed Use- Type	mgd	-Pump Capacity- gpm	mgd	Accept	90 Day Deadline	LOA Issued	Permit(s) Approved
Kohala	Mahukona	(3) 5-5-005:030	8-7552-004	Bhanot	Aditi Bhargava (Alok & Aditi Trust)	Both	DOM	0.001	25	0.036	08/16/2024	11/14/2024		
Kilauea	Pahoa	(3) 1-5-039:175	8-3489-020	Paliku O Ka'awali'i	Leroy Kunio Padilla	Both	DOM	0.001	25	0.036	09/05/2024	12/04/2024		
Kilauea	Pahoa	(3) 1-5-028:036	8-3586-181	Leah	Lawrence Scanlon	Both	DOM	0.001	25	0.036	09/19/2024	12/18/2024		
Kilauea	Pahoa	(3) 1-5-054:038	8-3687-275	Loke	Laura Jane Mader	Both	DOM	0.001	25	0.036	09/19/2024	12/18/2024		
Kohala	Mahukona	(3) 5-8-001:033	8-6853-006	Levanta	James & Loretta Wickenden	Both	DOM	0.001	25	0.036	09/19/2024	12/18/2024		
Kilauea	Pahoa	(3) 1-5-030:012	8-3586-180	Magnum Properties	Sharon Takabayashi (Magnum Investment Properties Inc.)	Both	DOM	0.001	25	0.036	09/27/2024	12/26/2024		11/23/2024
W. Mauna Kea	Waimea	(3) 6-6-002:041	8-5849-008	Waimea DMW	State of Hawaii, DLNR, Engineering Division	Well	OBS				10/09/2024	01/07/2025		
Kohala	Hawi	(3) 5-6-002:013	8-7453-001	PBR 13 #1	Lambert Theodore Van Eerden Jr.	Both	DOM	0.001	26	0.037	10/18/2024	01/16/2025		
Kilauea	Pahoa	(3) 1-5-055:050	8-3687-276	Mateo 050 2nd Avenue	Cris Mateo	Both	DOM	0.001	25	0.036	11/07/2024	02/05/2025		
Kilauea	Pahoa	(3) 1-5-051:143	8-3587-101	Living Water	Vladamir Berezyuk	Both	DOM	0.001	25	0.036	11/18/2024	02/16/2025		

60 records listed for the island of Hawaii

Kauai

Aquifer Sector	Aquifer System	TMK	Well No	Well Name	Applicant	Permit Type	-Proposed Use- Type	mgd	-Pump Capacity- gpm	mgd	Accept	90 Day Deadline	LOA Issued	Permit(s) Approved
Lihue	Kilauea	(4) 5-2-012:035	2-1224-006	Waipua	Charles M Somers Living Trust	Pump	AGR	0.072	50	0.072	07/25/2022	10/23/2022		
Lihue	Anahola	(4) 4-9-014:016	2-1120-070	Moloaa Kai	The Moloa'a Kai Partnership	Both	DOM	0.001	25	0.036	09/06/2023	12/05/2023		
Lihue	Anahola	(4) 4-9-011:021	2-1120-071	Sweet Mango	Malia Powers	Both	DOM	0.002	26	0.037	07/01/2024	09/29/2024		
Lihue	Anahola	(4) 4-9-014:008	2-1119-004	Wells 6618	Michael Wells Trust	Both	DOM	0.002	26	0.037	09/05/2024	12/04/2024		
Lihue	Anahola	(4) 4-9-009-009-0007	2-1119-006	Wailele	Timothy Webar (Halewood Gardens LLC)	Both	DOM	0.005	26	0.037	09/26/2024	12/25/2024		
Lihue	Anahola	(4) 4-9-009-009-0005	2-1119-005	Kahawai	Timothy Webar (Halewood Gardens LLC)	Both	DOM	0.005	26	0.037	10/01/2024	12/30/2024		
Lihue	Koloa	(4) 2-7-003-005-018	2-5429-003	ORL24	Daryl Kaneshiro (Omao Ranch Lands LLC)	Both	DOM	0.035	26	0.037	10/10/2024	01/08/2025		

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Kauai

Aquifer Sector	Aquifer System	TMK	Well No	Well Name	Applicant	Permit Type	-Proposed Use- Type	mgd	-Pump Capacity- gpm	mgd	Accept	90 Day Deadline	LOA Issued	Permit(s) Approved
Lihue	Anahola	(4) 4-9-013:012	2-1120-072	Kawaiolamomona	Kuuleialoha Punua Johnson (Robert HK & Kuuleialoha Punua Johnson Trust)	Both	DOM	0.002	20	0.029	12/18/2024	03/18/2025		

8 records listed for the island of Kauai

Maui

Aquifer Sector	Aquifer System	TMK	Well No	Well Name	Applicant	Permit Type	-Proposed Use- Type	mgd	-Pump Capacity- gpm	mgd	Accept	90 Day Deadline	LOA Issued	Permit(s) Approved
Central	Kahului	(2) 3-8-006:007	6-5227-008	Puunene-First Assembly	Maui First Assembly of God - Kahului, Maui "King's Cathedral and Chapel"	Both	IRR	0.048	60	0.086	01/10/1991	04/10/1991		02/13/1990
Hana	Kipahulu	(2) 1-7-002:001	6-3806-004	Punahoa	Kaupo Ranch Ltd	Both	OTH	0.080	100	0.144	12/22/2003	03/21/2004		02/27/2004
Central	Kamaole	(2) 2-2-002:017	6-4621-001	Kula 1800 No. 1	Kula 1800 Investment Partners LLC	Both	MUN	0.450	500	0.720	11/21/2006	02/19/2007	08/15/2006	11/21/2006
Wailuku	Iao	(2) 3-8-046:043	6-5229-007	Maui Memorial Park	Maui Memorial Park LLC	Both	IRR	0.030	50	0.072	01/09/2012	04/08/2012		11/05/2012
Koolau	Haiku	(2) 2-7-004:007	6-5519-009	Nalu Ola	Makai Hana V, LLC	Both	MUNPR	0.215	225	0.324	08/29/2012	11/27/2012	09/17/2013	09/10/2013
Central	Kamaole	(2) 3-9-009:008	6-4427-012	Passon	Passon Family Trust	Both	IRRLA	0.144	100	0.144	12/12/2012	03/12/2013		02/20/2012
Central	Kamaole	(2) 2-1-005:079	6-3726-005	Millar 2	Mana Ohana Kai Trust	Both	IRR	0.030	60	0.086	02/17/2016	05/17/2016		06/20/2017
Central	Kahului	(2) 3-8-057:030	6-5228-023	BEST	Eddie Bautista	Both	IRRLA	0.001	30	0.043	01/13/2017	04/13/2017		03/20/2017
Central	Kamaole	(2) 2-1-006:089	6-3726-006	Ron Jacintho	Waiko Baseyard, LLC	Both	IRRLA	0.012	65	0.094	08/30/2017	11/28/2017		
Central	Paia	(2) 3-8-002:044	6-5424-020	Bendon	John Bendon (John Bendon Trust)	Both	IRRLA	0.008	35	0.050	09/12/2017	12/11/2017		11/02/2017
Central	Paia	(2) 3-8-004:028	6-4626-003	Kaiwahine	Ikaika Ohana	Both	IRRLA	0.072	100	0.144	09/20/2018	12/19/2018	03/22/2018	
Lahaina	Olowalu	(2) 4-8-003:092	6-4936-003	McGee	James B. & Nancy E. McGee	Both	DOM	0.005	55	0.079	07/29/2019	10/27/2019		
Lahaina	Ukumehame	(2) 4-8-002:102	6-4834-003	Ukumehame Well 5	Ukumehame Water Association, Inc.	Both	MUNPR	0.250	350	0.504	08/21/2020	11/19/2020		
Lahaina	Ukumehame	(2) 4-8-002:119	6-4834-002	UKA-4	Ukumehame Water Association, Inc.	Both	MUNPR	0.030	40	0.058	09/23/2020	12/22/2020		
Central	Paia	(2) 2-5-004:029	6-5620-007	Stice	Tracy S & Laura T Stice	Both	AGR	0.003	10	0.014	12/31/2020	03/31/2021	11/15/2015	
Central	Makawao	(2) 2-3-007:037	6-4918-001	Kealaloa Tank	State of Hawaii, DLNR, Engineering Division	Both	MUN	0.672	700	1.008	01/12/2021	04/12/2021		
Wailuku	Waihee	(2) 3-1-001:042	6-5731-010	EX 1	Mendes Ranch Water	Both	MUNCO	1.000	800	1.152	01/13/2021	04/13/2021		

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Maui

Aquifer Sector	Aquifer System	TMK	Well No	Well Name	Applicant	Permit Type	-Proposed Use- Type	mgd	-Pump Capacity- gpm	mgd	Accept	90 Day Deadline	LOA Issued	Permit(s) Approved
Wailuku	Waihee	(2) 3-1-001:042	6-5731-011	EX 2	Mendes Ranch Water	Both	MUNCO	1.000	800	1.152	01/13/2021	04/13/2021		
Lahaina	Launiupoko	(2) 4-7-001:054	6-5138-005	LIC-2	Launiupoko Irrigation Co., Inc.	Both	AGR	0.700	500	0.720	06/28/2021	09/26/2021		
Lahaina	Olowalu	(2) 4-8-003:108	6-4936-004	Olowalu 2	Olowalu Water Company LLC	Both	MUN	0.360	250	0.360	07/21/2021	10/19/2021		
Central	Paia	(2) 2-5-003:010	6-5120-001	Hoku'ula 1	Hoku'ula Water Association, Inc.	Both	MUN	0.270	350	0.504	07/21/2021	10/19/2021		
Central	Paia	(2) 2-5-003:010	6-5120-002	Hoku'ula 2	Hoku'ula Water Association, Inc.	Both	MUN	0.270	350	0.504	07/21/2021	10/19/2021		
Lahaina	Honolua	(2) 4-3-001:084	6-5839-005	Pulelehua 1	Maui Oceanview, LP	Both	MUN	0.280	600	0.864	07/30/2021	10/28/2021		
Lahaina	Honolua	(2) 4-3-001:084	6-5839-006	Pulelehua 2	Maui Oceanview, LP	Both	MUN	0.280	600	0.864	07/30/2021	10/28/2021		
Central	Kahului	(2) 3-8-006:069	6-5227-009	Kings	Maui First Assembly of God - Kahului, Maui "King's Cathedral and Chapel"	Both	DOMNRI	0.005	155	0.223	08/10/2021	11/08/2021		
Lahaina	Olowalu	(2) 4-8-003:093	6-4936-005	Kahili	Francis Cornelis & Nadja Cornelis Koole	Both	DOM	0.009	45	0.065	10/04/2021	01/02/2022		
Central	Kamaole	(2) 2-2-001:008	6-4122-003	OW Ranch LLC	Oprah's Farm LLC	Pump	AGR	0.157	145	0.209	02/02/2022	05/03/2022		
Central	Kahului	(2) 3-8-007:101	6-5129-008	Waiale 3	Maui Business Park Phase II Owner's Association	Both	MUNPR	0.300	450	0.648	02/02/2022	05/03/2022		
Koolau	Haiku	(2) 2-8-004:009	6-5516-003	Mahana View	Steve Rodgers Frey	Both	DOM	0.001	25	0.036	02/14/2022	05/15/2022		
Kahikinui	Lualailua	(2) 2-1-004:039	6-3625-003	Files Water	Jon File (Party of Five, LLLP)	Both	IRROTH	0.011	15	0.022	03/21/2022	06/19/2022		
Koolau	Honopou	(2) 2-9-007:052	6-5413-017	Bolles	David Bolles (Eco Farms LLC)	Both	IRRLA	0.050	70	0.101	03/21/2022	06/19/2022		
Central	Kamaole	(2) 2-2-002-002-24	6-4225-004	Makoa	Covoste, LLC	Both	MUN	0.220	300	0.432	02/23/2023	05/24/2023		
Lahaina	Honolua	(2) 4-3-001:084	6-5839-007	Pulelehua 3	Maui Oceanview, LP	Both	MUN	0.180	250	0.360	02/27/2023	05/28/2023		
Central	Kamaole	(2) 3-9-041:002	6-4627-020	Kai Makani	Quam Properties Hawaii, Inc.	Both	IRRLA	0.101	70	0.101	03/07/2023	06/05/2023		
Central	Makawao	(2) 2-3-003:002	6-4821-004	SGD Springs	Jason Garnett	Both	DOM	0.072	50	0.072	03/20/2023	06/18/2023		
Wailuku	Waihee	(2) 3-1-001:042	6-5731-010	Mendes EX-1	Mendes Ranch Real Estate, LLC	Both	AGRLI	0.024	25	0.036	03/31/2023	06/29/2023		
Wailuku	Waihee	(2) 3-1-001:042	6-5731-011	Mendes EX-2	Mendes Ranch Real Estate, LLC	Both	AGRLI	0.024	25	0.036	03/31/2023	06/29/2023		
Wailuku	Iao	(2) 3-5-001:080	6-5230-006	Kehalani Mauka Park	County of Maui, Department of Parks and Recreation	Both	IRRPA	0.090	150	0.216	04/06/2023	07/05/2023		
Wailuku	Waikapu	(2) 3-6-004:003	6-5030-001	WCT 1	Waikapu Properties, LLC (Albert Boyce)	Pump	MUNPR	0.683	712	1.025	05/10/2023	08/08/2023		
Central	Paia	(2) 2-5-005-020-0003	6-5422-002	Paia Pump 17	Mahi Pono, LLC	Both	AGRCP		6250	9.000	06/28/2023	09/26/2023		
Central	Kahului	(2) 3-8-006:003	6-5128-002	Waikapu Shaft Pump F Well 7	Mahi Pono LLC	Both	AGR		8400	12.096	06/30/2023	09/28/2023		

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Well Construction and Pump Installation Permit Applications (WCPIPA) Bulletin

Maui

Aquifer Sector	Aquifer System	TMK	Well No	Well Name	Applicant	Permit Type	-Proposed Use- Type	mgd	-Pump Capacity- gpm	mgd	Accept	90 Day Deadline	LOA Issued	Permit(s) Approved
Lahaina	Launiupoko	(2) 4-7-003:021	6-5139-004	Rogers Well	Kahalawai Holdings LLC	Both	DOM	0.020	70	0.101	07/13/2023	10/11/2023		
Central	Makawao	(2) 2-3-003:033	6-4821-005	Tafuna Ranch LLC	Maui Oil Company	Both	MUNPR	0.101	70	0.101	08/30/2023	11/28/2023		

43 records listed for the island of Maui

Molokai

Aquifer Sector	Aquifer System	TMK	Well No	Well Name	Applicant	Permit Type	-Proposed Use- Type	mgd	-Pump Capacity- gpm	mgd	Accept	90 Day Deadline	LOA Issued	Permit(s) Approved
Central	Palaau	(2) 5-2-011:007	4-0705-005	Naiwa-CIBA-GEIGY Irrigation	Ciba-Giegy Seed Division	Both	AGRCP	0.500	350	0.504	07/24/1989	10/22/1989		09/13/1989
Southeast	Waialua	(2) 5-8-015:003	4-0844-001	Puu O Hoku 1	Puu O Hoku Ranch, Limited	Pump	DOM	0.235	350	0.504	10/10/2001	01/08/2002		10/10/2001
Southeast	Kawela	(2) 5-5-001:007	4-0354-008	Keonekuino Pond -Teves	Irrevocable Harvey A. Teves Family Trust	Pump			10	0.014	11/11/2011	02/09/2012		
West	Kaluakoi	(2) 5-1-007:048	4-0916-002	Papohaku-Foster	Richard John Ward Foster	Both	AGRAQ	0.006	15	0.022	05/13/2013	08/11/2013		
West	Kaluakoi	(2) 5-1-006:072	4-1015-001	Papohaku-Rizk	Norman Wade Rizk	Both	IRR	0.021	15	0.022	05/13/2013	08/11/2013		
West	Kaluakoi	(2) 5-1-006:073	4-1015-002	Papohaku Beach Park	County of Maui, Parks and Recreation	Both	IRRPA	0.060	100	0.144	04/06/2023	07/05/2023		

6 records listed for the island of Molokai

Oahu

Aquifer Sector	Aquifer System	TMK	Well No	Well Name	Applicant	Permit Type	-Proposed Use- Type	mgd	-Pump Capacity- gpm	mgd	Accept	90 Day Deadline	LOA Issued	Permit(s) Approved
Pearl Harbor	Waipahu-Waiawa	(1) 9-6-003:005	3-2359-016	Waipahu Asato	Fred Asato	Both					09/08/1977	12/07/1977		09/08/1977
Honolulu	Waialae-East	(1) 3-5-023:039	3-1646-006	Kahala 2	The Kahala Hotel & Resort	Both	INDOTH	4.000	2800	4.032	01/12/1981	04/12/1981		02/11/1981
Ewa Caprock	Malakole	(1) 9-1-031:028	3-1805-015	Kalaeloa Basalt	Honolulu Board of Water Supply, BWS	Both	MUN	0.000	4200	6.048	05/14/2003	08/12/2003		07/07/2003
Pearl Harbor	Waipahu-Waiawa	(1) 9-6-005:003	3-2658-007	Gentry Waiawa 1	Waiawa Development, LLC	Both	IRR	0.650	800	1.152	02/11/2004	05/11/2004	11/18/2005	
Pearl Harbor	Waipahu-Waiawa	(1) 9-6-005:003	3-2658-008	Gentry Waiawa 2	Waiawa Development, LLC	Both	IRR	0.650	800	1.152	02/11/2004	05/11/2004	11/18/2005	
Ewa Caprock	Malakole	(1) 9-1-031:003	3-1805-017	TSO06FW-2	Tesoro Hawaii Corp.	Both	OTH	0.000	2000	2.880	06/05/2006	09/03/2006	05/12/2006	06/05/2006
Ewa Caprock	Malakole	(1) 9-1-031:003	3-1805-018	TSO06FW-3	Tesoro Hawaii Corp.	Both	OTH	0.000	2000	2.880	06/05/2006	09/03/2006	05/12/2006	06/05/2006
Windward	Koolauloa	(1) 5-3-011:008	3-3353-005	PBC 1	Pan-Buddhist Center	Both	DOM	0.001	30	0.043	06/28/2008	09/26/2008		

NOTES: gpm = gallons per minute, mgd = million gallons per day, DOM = individual domestic, IND = industrial, IRR = irrigation, MIL = military, MUN = municipal, OBS = observation, OTH = other use, SLD = well has been sealed, BOTH = WELL + PUMP combined with pump approval pending pump test results. WCPIA are acted upon by the Chairperson unless deferred before and by the Commission. LOA = letter of assurance.

Well Construction and Pump Installation Permit Applications (WCPIPA) Bulletin

Oahu

Aquifer Sector	Aquifer System	TMK	Well No	Well Name	Applicant	Permit Type	-Proposed Use- Type	mgd	-Pump Capacity- gpm	mgd	Accept	90 Day Deadline	LOA Issued	Permit(s) Approved
Windward	Koolauloa	(1) 5-5-008:043	3-3955-003	Kuanonoehu	Dawn K. Wasson	Both	IRR	0.100	70	0.101	02/12/2009	05/13/2009		
Waianae	Makaha	(1) 8-4-002:055	3-2811-006	DU-2	Hawaii Golf Properties LLC	Both	IRR		350	0.504	06/15/2012	09/13/2012		04/01/2013
Ewa Caprock	Kapolei	(1) 9-1-134:029	3-1802-003	Hoakalei	Haseko Development, Inc.	Both	OTH	1.000	1000	1.440	01/15/2013	04/15/2013	03/28/2013	03/28/2013
Ewa Caprock	Puuloa	(1) 9-1-134:014	3-1802-004	HL Makai	Haseko Development, Inc.	Well	OBS	0.000	0	0.000	03/06/2013	06/04/2013		
Ewa Caprock	Puuloa	(1) 9-1-134:014	3-1802-005	HL Mauka	Haseko Development, Inc.	Well	OBS	0.000	0	0.000	03/06/2013	06/04/2013		
Honolulu	Nuuanu	(1) 2-3-001:004	3-1751-010	Waiea Source 1	Victoria Ward Ltd.	Both	INDOTH	0.037	2600	3.744	05/16/2014	08/14/2014	08/12/2014	09/16/2014
Honolulu	Nuuanu	(1) 2-3-001:004	3-1751-011	Waiea Source 2	Victoria Ward Ltd.	Both	INDOTH	0.037	2600	3.744	05/16/2014	08/14/2014	08/12/2014	09/16/2014
North	Waialua	(1) 6-2-010:001	3-3505-008	Opaeula Pump 3 Well H	Kamehameha Schools, KS	Pump	AGRCP	1.552	1400	2.016	03/18/2015	06/16/2015	01/15/2014	
North	Mokuleia	(1) 6-7-003:019	3-3307-004	Waialua P2 Battery, Well "G"	Dole Food Company, Inc. Hawaii	Both	MUNPR	0.220	500	0.720	07/21/2016	10/19/2016		09/01/2016
North	Waialua	(1) 6-5-001:040	3-3306-032	Kemoo 1	Pioneer Hi-Bred International, Inc.	Both	AGR	0.010	1400	2.016	12/19/2016	03/19/2017		
North	Waialua	(1) 6-5-005:001	3-3406-019	Helemano Fields 2&4	Pioneer Hi-Bred International, Inc.	Both	AGR	0.010	1400	2.016	12/19/2016	03/19/2017		
Windward	Koolauloa	(1) 5-6-003:053	3-4258-019	North Pond	Makai Ranch, LLC	Well					08/22/2017	11/20/2017		
Windward	Koolauloa	(1) 5-6-003:053	3-4258-020	Retention Pond Mauka	Makai Ranch, LLC	Well					08/22/2017	11/20/2017		
Windward	Koolauloa	(1) 5-6-003:053	3-4258-021	Retention Pond Makai	Makai Ranch, LLC	Well					08/22/2017	11/20/2017		
North	Mokuleia	(1) 6-8-003:009	3-3411-016	4Rs	Mokuleia Ag Lands LLC	Both	AGRCP	0.058	250	0.360	06/18/2019	09/16/2019		09/17/2019
North	Mokuleia	(1) 6-7-002:034	3-3308-009	Legend Farms	Legend Farms USA, Inc.	Both	DOM	0.000	25	0.036	12/18/2020	03/18/2021		
Pearl Harbor	Waipahu-Waiawa	(1) 9-4-003:002	3-2501-002	HTGI	Hawaiian Turfgrass Inc.	Both	IRRLA	0.400	300	0.432	01/14/2021	04/14/2021		
Pearl Harbor	Ewa-Kunia	(1) 9-2-003:098	3-2104-002	The Groves	White Labels Venture LLC	Both	AGRCP	0.151	120	0.173	04/09/2021	07/08/2021		
North	Waialua	(1) 6-6-027:010	3-3306-033	Ka'ala Ranch 2	Ka'ala Ranch 2 LLC	Both	AGR	0.360	250	0.360	04/15/2021	07/14/2021		
Windward	Koolauloa	(1) 5-3-003:005	3-3453-019	Phillip 2021	Solomon & Serena Stephanie Phillip	Both	DOM	0.001	25	0.036	05/03/2021	08/01/2021		
North	Waialua	(1) 6-5-004:012	3-3205-005	Sharipov	Russ Sharipova	Both	DOM	0.001	20	0.029	06/02/2021	08/31/2021		
Windward	Koolauloa	(1) 5-5-008:060	3-3856-011	Kahawaii 2022	Harlan Kahawaii	Both	DOM	0.001	25	0.036	03/18/2022	06/16/2022		
Windward	Koolauloa	(1) 5-6-005:002	3-4158-019	Maluhia 2021	Patrick Morris (Kahuku Maluhia LLC)	Both	AGRAQ	0.038	40	0.058	03/18/2022	06/16/2022		

NOTES: gpm = gallons per minute, mgd = million gallons per day, DOM = individual domestic, IND = industrial, IRR = irrigation, MIL = military, MUN = municipal, OBS = observation, OTH = other use, SLD = well has been sealed, BOTH = WELL + PUMP combined with pump approval pending pump test results. WCPIA are acted upon by the Chairperson unless deferred before and by the Commission. LOA = letter of assurance.

Well Construction and Pump Installation Permit Applications (WCPIPA) Bulletin

Oahu

Aquifer Sector	Aquifer System	TMK	Well No	Well Name	Applicant	Permit Type	-Proposed Use- Type	mgd	-Pump Capacity- gpm	mgd	Accept	90 Day Deadline	LOA Issued	Permit(s) Approved
Windward	Waimanalo	(1) 4-1-024:081	3-2043-003	KNICHOLS 2022	Nichols, Kitty D Trust	Both	DOMNCB	0.006	40	0.058	05/18/2022	08/16/2022		
Windward	Koolauloa	(1) 5-5-008:055	3-3856-010	Ohana Well	Ohana Water LLC	Both	AGR	0.472	500	0.720	08/29/2022	11/27/2022		
Windward	Koolauloa	(1) 5-5-008:040	3-3956-007	Kaio	Ohana Water LLC	Pump	AGR	0.017	40	0.058	08/29/2022	11/27/2022		
Pearl Harbor	Waimalu	(1) 9-9-010:010	3-2253-024	BWS2253-H1	Honolulu Board of Water Supply, BWS	Both	OBSOTH	0.000	1	0.001	09/19/2022	12/18/2022		
North	Waialua	(1) 6-2-006:020	3-3405-006	Ozzy 2022	Rodrigo Gonzalez	Both	DOM	0.001	20	0.029	02/02/2023	05/03/2023		
North	Waialua	(1) 6-4-001:014	3-3405-008	Laukiha'a Farms 2	Laukiha'a Farms	Both	AGRCP	1.285	900	1.296	04/06/2023	07/05/2023		
Waianae	Keaau	(1) 8-3-002:011	3-2913-004	Kea'au Beachfront	Monte Castro	Both	IRROTH	0.064	50	0.072	04/24/2023	07/23/2023		
Pearl Harbor	Waimalu	(1) 9-9-067:001	3-2354-003	Aiea 497 Exploratory	Honolulu Board of Water Supply, BWS	Well	MUNCO				07/13/2023	10/11/2023		
Pearl Harbor	Ewa-Kunia	(1) 9-1-056:015	3-2006-019	KO-1	Ko Olina Golf Club LLC	Both	IRRLA	0.400	900	1.296	07/20/2023	10/18/2023		
North	Waialua	(1) 6-4-001:014	3-3403-001	Laukiha'a Farms 1	Laukiha'a Farms	Both	AGRCP	0.877	625	0.900	07/25/2023	10/23/2023		
Pearl Harbor	Waipahu-Waiawa	(1) 9-2-001:013	3-2202-023	Ewa Shaft Well 1	Honolulu Board of Water Supply, BWS	Both	MUNCO	2.000	1400	2.016	10/12/2023	01/10/2024		
Pearl Harbor	Waipahu-Waiawa	(1) 9-2-001:013	3-2202-024	Ewa Shaft Well 1A	Honolulu Board of Water Supply, BWS	Both	MUNCO	2.000	1400	2.016	10/12/2023	01/10/2024		
Pearl Harbor	Waipahu-Waiawa	(1) 9-2-001:013	3-2202-025	Ewa Shaft Well 2	Honolulu Board of Water Supply, BWS	Both	MUNCO	2.000	1400	2.016	10/12/2023	01/10/2024		
Pearl Harbor	Waipahu-Waiawa	(1) 9-2-001:013	3-2202-026	Ewa Shaft Well 2A	Honolulu Board of Water Supply, BWS	Both	MUNCO	2.000	1400	2.016	10/12/2023	01/10/2024		
Pearl Harbor	Waipahu-Waiawa	(1) 9-2-001:013	3-2202-027	Ewa Shaft Well 3	Honolulu Board of Water Supply, BWS	Both	MUNCO	2.000	1400	2.016	10/12/2023	01/10/2024		
Pearl Harbor	Waimalu	(1) 9-8-062:099	3-2456-006	Newtown 550 Exploratory	Honolulu Board of Water Supply, BWS	Well	MUNCO				12/13/2023	03/12/2024		
North	Waialua	(1) 6-6-019-046-0006	3-3406-022	Nitahara	Reid Nitahara	Both	IRR	0.015	30	0.043	12/14/2023	03/13/2024		
Pearl Harbor	Waimalu	(1) 9-9-010:010	3-2253-030	NMW22	Naval Facilities Engineering Command Hawaii, NAVFAC Hawaii	Well	OBSOTH				12/22/2023	03/21/2024		
Pearl Harbor	Waimalu	(1) 9-9-010:010	3-2254-027	NMW23	Naval Facilities Engineering Command Hawaii, NAVFAC Hawaii	Well	OBSOTH				12/22/2023	03/21/2024		

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Oahu

Aquifer Sector	Aquifer System	TMK	Well No	Well Name	Applicant	Permit Type	-Proposed Use- Type	mgd	-Pump Capacity- gpm	mgd	Accept	90 Day Deadline	LOA Issued	Permit(s) Approved
Pearl Harbor	Waimalu	(1) 1-1-012:013	3-2153-014	Site S	Honolulu Board of Water Supply, BWS	Both	OBSOTH		2	0.003	03/12/2024	06/10/2024	07/01/2024	
Honolulu	Waialae-West	(1) 3-3-014:016	3-1747-005	Waialae West	Honolulu Board of Water Supply, BWS	Pump	MUNCO	0.504	350	0.504	03/25/2024	06/23/2024		
North	Kawailoa	(1) 6-2-008:042	3-3505-033	Anahulu	Anahulu River Farms LLC	Both	AGRCP	0.039	80	0.115	05/22/2024	08/20/2024		
Pearl Harbor	Waimalu	(1) 9-9-076:002	3-2155-007	NMW33A	Naval Facilities Engineering Command Hawaii, NAVFAC Hawaii	Well	OBS				07/03/2024	10/01/2024		10/25/2024
Honolulu	Nuuanu	(1) 2-9-054:033	3-1948-005	Manoa Wells II	Honolulu Board of Water Supply, BWS	Well	MUNCO				08/23/2024	11/21/2024		
Pearl Harbor	Waimalu	(1) 9-9-072:044	3-2254-025	Site A	Honolulu Board of Water Supply, BWS	Both	OBSOTH		2	0.003	08/29/2024	11/27/2024	07/01/2024	
North	Waialua	(1) 6-2-007:002	3-3405-007	Robinson Ranch	Leif Robinson	Both	DOM	0.001	26	0.037	09/04/2024	12/03/2024		
Pearl Harbor	Waimalu		3-2255-043	NMW41	Naval Facilities Engineering Command Hawaii, NAVFAC Hawaii	Well	OBS				09/11/2024	12/10/2024		
Pearl Harbor	Waimalu	(1) 9-9-010:058	3-2254-026	Site D1	Board of Water Supply, City and County of Honolulu	Both	OBSOTH		2	0.003	09/13/2024	12/12/2024	07/01/2024	10/25/2024
Pearl Harbor	Waimalu		3-2254-028	NMW38	Naval Facilities Engineering Command Hawaii, NAVFAC Hawaii	Well	OBS				09/19/2024	12/18/2024		
Pearl Harbor	Waimalu		3-2254-029	NMW38A	Naval Facilities Engineering Command Hawaii, NAVFAC Hawaii	Well	OBS				09/19/2024	12/18/2024		
Pearl Harbor	Waimalu		3-2254-030	NMW31	Naval Facilities Engineering Command Hawaii, NAVFAC Hawaii	Well	OBS				09/19/2024	12/18/2024		
North	Kawailoa	(1) 6-2-008:036	3-3505-034	Freed	Chris Freed (Chris & Julie Freed)	Both	DOM	0.001	26	0.037	09/25/2024	12/24/2024		
Pearl Harbor	Waimalu	(1) 1-1-012:013	3-2153-015	NMW43	Naval Facilities Engineering Command Hawaii, NAVFAC Hawaii	Well	OBS				10/10/2024	01/08/2025		
Pearl Harbor	Waimalu	(1) 1-1-012:013	3-2153-016	NMW43A	Naval Facilities Engineering Command Hawaii, NAVFAC Hawaii	Well	OBS				10/10/2024	01/08/2025		
Windward	Koolauloa	(1) 5-5-007:001	3-3856-012	Laie Mauka Tank	Laie Water Co.	Both	MUNPR	0.500	1050	1.512	10/23/2024	01/21/2025		
Windward	Koolauloa	(1) 5-5-007:001	3-3856-013	Laie Makai Tank	Laie Water Co.	Both	MUNPR	0.500	1050	1.512	10/23/2024	01/21/2025		

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Oahu

Aquifer Sector	Aquifer System	TMK	Well No	Well Name	Applicant	Permit Type	-Proposed Use- Type	mgd	-Pump Capacity- gpm	mgd	Accept	90 Day Deadline	LOA Issued	Permit(s) Approved
Pearl Harbor	Ewa-Kunia	(1) 9-2-019:089	3-2005-002	Kawaiola 2024	Shaun Kauihou	Both	DOM	0.001	26	0.037	11/27/2024	02/25/2025		

68 records listed for the island of Oahu

NOTES: gpm = gallons per minute, mgd = million gallons per day, DOM = individual domestic, IND = industrial, IRR = irrigation, MIL = military, MUN = municipal, OBS = observation, OTH = other use, SLD = well has been sealed, BOTH = WELL + PUMP combined with pump approval pending pump test results. WCPIA are acted upon by the Chairperson unless deferred before and by the Commission. LOA = letter of assurance.

Ground Water Use Permit Applications (WUPA) Bulletin

Report Parameters

WUP Type:	Water Use Permit Application, Administrative Modification, Transfer, CWRM Revocation Action
Island:	All
Applicant:	All
Well # Prefix:	All
Date:	All
Aquifer Sector:	All
Aquifer:	All
Source or End Use TMK:	All
Aquifer Type:	Alluvial, Basal, Deep Fresh Water, Dike, Perched, Not Specified
Water Quality:	Fresh, Brackish, Potable, Non-Potable, Not Specified
Not:	Salt
Proposed Use:	All

Maui

Aquifer System	WUP No	Applicant	Well Name	Well No.	mgd	TMK	Use Description	Accepted	PN2	Object	PH	Deadline	Agenda	Final Action
Iao	00852	Department of Water Supply Maui, MDWS	Iao Tunnel (Kepaniwai)	6-5332-002	0.841		Municipal needs	10/01/2008	10/30/2008	11/14/2008	12/16/2008	03/30/2009	02/18/2009	
Iao	00872	Maui Economic Concerns of the Community	Ka Hale A Ke Ola	6-5230-001	0.018	238046033	17.5 acres of landscape irrigation at Waiale County Park & affodable homes	06/08/2010	06/23/2010	07/08/2010		09/06/2010		
Iao	00901	Maui Memorial Park LLC	Maui Memorial Park	6-5229-007	0.014	238046000	irrigation of 14.3 acres of graveyard grass.	01/09/2012	02/10/2012	02/24/2012		04/08/2012		
Iao	01001	Hawaiian Commercial & Sugar Co. (HC&S)	Iao Tunnel (Puako)	6-5330-002	0.100	238000000	Irrigation of HC&S Lands	06/18/2015				09/16/2015		

4 records listed for the island of Maui

Molokai

Aquifer System	WUP No	Applicant	Well Name	Well No.	mgd	TMK	Use Description	Accepted	PN2	Object	PH	Deadline	Agenda	Final Action
Kualapuu	00499	Department of Water Supply Maui, MDWS	Kualapuu Mauka	4-0801-003	0.900		Municipal	10/12/2015	10/27/2015	06/14/2016		06/14/2016		

Notes: WMA = Water Management Area; WUP = Water use permit; mgd = million gallons per day, requested amount; PN2 = 2nd Public Notice; Object = Objection Deadline; PH = Public Hearing Date, if necessary. If a public hearing is required, applications go before the CWRM within 180 days, otherwise within 90 days.

Report Parameters

WUP Type: Water Use Permit Application, Administrative Modification, Transfer, CWRM Revocation Action

Molokai

Aquifer System	WUP No	Applicant	Well Name	Well No.	mgd	TMK	Use Description	Accepted	PN2	Object	PH	Deadline	Agenda	Final Action
Kualapuu	00973	Molokai Public Utilities, Inc., MPU	Well 17	4-0901-001	1.026		10% addition to MIS	10/12/2015	10/30/2015	06/14/2016		06/14/2016		
						251003005	Kaluakoi Hotel Landscaping							
						251003005	Kaluakoi Hotel Units							
						251003006	Kaluakoi Resort Condos Units							
						251003006	Kaluakoi Resort Condos Landscaping							
						251003007	Kaluakoi Golf Course							
						251003011	Kaluakoi Resort Condos Units							
						251003011	Kaluakoi Resort Condos Landscaping							
						251003013	Kaluakoi Resort Condos Units							
						251003013	Kaluakoi Resort Condos Landscaping							
						251003021	Kaluakoi Golf Course							
						251003022	Kaluakoi Golf Course							
						251003024	Kaluakoi Golf Course							
						251003027	Kaluakoi Golf Course							
						251004000	Kaluakoi Resort Residences Homes							
						251004000	Kaluakoi Resort Residences Irrigation							
						251005000	Kaluakoi Resort Residences Homes							
						251005000	Kaluakoi Resort Residences Irrigation							
						251006000	Kaluakoi Resort Residences Homes							
						251006000	Kaluakoi Resort Residences Irrigation							
						251006073	Papohaku Beach Park							
						251007000	Kaluakoi Resort Residences Irrigation							
						251007000	Kaluakoi Resort Residences Homes							
						251008000	Kaluakoi Resort Residences Irrigation							
						251008000	Kaluakoi Resort Residences Homes							
						252028000	Kualapu'u							

Notes: WMA = Water Management Area; WUP = Water use permit; mgd = million gallons per day, requested amount; PN2 = 2nd Public Notice; Object = Objection Deadline; PH = Public Hearing Date, if necessary. If a public hearing is required, applications go before the CWRM within 180 days, otherwise within 90 days.

Report Parameters

WUP Type: Water Use Permit Application, Administrative Modification, Transfer, CWRM Revocation Action

Molokai

Aquifer System	WUP No	Applicant	Well Name	Well No.	mgd	TMK	Use Description	Accepted	PN2	Object	PH	Deadline	Agenda	Final Action
						252029000	Kualapu'u Landscaping							

2 records listed for the island of Molokai

Oahu

Aquifer System	WUP No	Applicant	Well Name	Well No.	mgd	TMK	Use Description	Accepted	PN2	Object	PH	Deadline	Agenda	Final Action
Koolaupoko	00403	Honolulu Board of Water Supply, BWS	Waihee Tunnel	3-2651-002	4.500		MUNICIPAL USE	10/01/1993	11/10/1993	11/26/1993	02/02/1994	03/30/1994	08/16/1995	
Koolaupoko	00404	Honolulu Board of Water Supply, BWS	Waihee Incline 1	3-2652-002	1.000		MUNICIPAL USE	10/01/1993	11/10/1993	11/26/1993	02/02/1994	03/30/1994	08/16/1995	
Koolaupoko	00404	Honolulu Board of Water Supply, BWS	Waihee Incline 2	3-2652-003				10/01/1993	11/10/1993	11/26/1993	02/02/1994	03/30/1994	08/16/1995	
Koolaupoko	00404	Honolulu Board of Water Supply, BWS	Waihee Incline 3	3-2652-001				10/01/1993	11/10/1993	11/26/1993	02/02/1994	03/30/1994	08/16/1995	
Koolaupoko	00404	Honolulu Board of Water Supply, BWS	Waihee Incline 4	3-2652-004				10/01/1993	11/10/1993	11/26/1993	02/02/1994	03/30/1994	08/16/1995	
Koolaupoko	00471	Honolulu Board of Water Supply, BWS	Haiku	3-2450-002	0.543		DEFERRED PORTION OF EXISTING/FUTURE USE WUPNO.330	10/01/1993	11/10/1993	11/24/1993	02/02/1994	03/30/1994	08/16/1995	
Koolaupoko	00472	Honolulu Board of Water Supply, BWS	Kahaluu	3-2651-003	0.073		DEFERRED PORTION OF EXISTING/FUTURE USE WUP NO.333	10/01/1993	11/10/1993	11/24/1993	02/02/1994	03/30/1994	08/16/1995	
Malakole	00430	West Beach Estates	W. Beach Non-potable	3-2006-017	1.636	191000000	KO OLINA PHASE II G.COURSE; PHASE I&II LANDSCAPING	01/30/1996	03/06/1996	03/20/1996		03/20/1996	04/15/1996	
Nuuanu	00460	Honolulu Board of Water Supply, BWS	Nuuanu Aerator	3-2149-003	0.500		REPLACEMENT FOR SW SOURCES; MUNICIPAL GROWTH	11/22/1996	01/28/1997	02/11/1997		02/20/1997	02/18/1997	
Waiahole Ditch	00648	Susan J.O. Tamashiro	Kahana Tunnel 1	3-3154-001	0.064	148012005	IRRIGATION OF VARIOUS CROPS & FLOWERS	12/27/2002	04/07/2003	04/21/2003			05/21/2003	
Waiahole Ditch	00648	Susan J.O. Tamashiro	Uwao Tunnel Ext	3-2953-003				12/27/2002	04/07/2003	04/21/2003			05/21/2003	
Waiahole Ditch	00648	Susan J.O. Tamashiro	Waiahole Main Tunnel	3-2853-001				12/27/2002	04/07/2003	04/21/2003			05/21/2003	
Waiahole Ditch	00648	Susan J.O. Tamashiro	Waiahole Uwao Tunnel	3-2953-001				12/27/2002	04/07/2003	04/21/2003			05/21/2003	

Notes: WMA = Water Management Area; WUP = Water use permit; mgd = million gallons per day, requested amount; PN2 = 2nd Public Notice; Object = Objection Deadline; PH = Public Hearing Date, if necessary. If a public hearing is required, applications go before the CWRM within 180 days, otherwise within 90 days.

Report Parameters

WUP Type: Water Use Permit Application, Administrative Modification, Transfer, CWRM Revocation Action

Oahu

Aquifer System	WUP No	Applicant	Well Name	Well No.	mgd	TMK	Use Description	Accepted	PN2	Object	PH	Deadline	Agenda	Final Action
Waiahole Ditch	00648	Susan J.O. Tamashiro	Waiawa Dev Tun Exit	3-2657-005				12/27/2002	04/07/2003	04/21/2003			05/21/2003	
Waiahole Ditch	00648	Susan J.O. Tamashiro	Waikane Tunnel 1	3-3053-001				12/27/2002	04/07/2003	04/21/2003			05/21/2003	
Waiahole Ditch	00648	Susan J.O. Tamashiro	Waikane Tunnel 2	3-2953-002				12/27/2002	04/07/2003	04/21/2003			05/21/2003	
Waiahole Ditch	00649	Anthony J. Fraiola, Jr.	Kahana Tunnel 1	3-3154-001	0.021	148012005	IRRIGATION OF FARM CROPS	01/14/2003	04/07/2003	04/21/2003			05/21/2003	
Waiahole Ditch	00649	Anthony J. Fraiola, Jr.	Uwao Tunnel Ext	3-2953-003				01/14/2003	04/07/2003	04/21/2003			05/21/2003	
Waiahole Ditch	00649	Anthony J. Fraiola, Jr.	Waiahole Main Tunnel	3-2853-001				01/14/2003	04/07/2003	04/21/2003			05/21/2003	
Waiahole Ditch	00649	Anthony J. Fraiola, Jr.	Waiahole Uwao Tunnel	3-2953-001				01/14/2003	04/07/2003	04/21/2003			05/21/2003	
Waiahole Ditch	00649	Anthony J. Fraiola, Jr.	Waiawa Dev Tun Exit	3-2657-005				01/14/2003	04/07/2003	04/21/2003			05/21/2003	
Waiahole Ditch	00649	Anthony J. Fraiola, Jr.	Waikane Tunnel 1	3-3053-001				01/14/2003	04/07/2003	04/21/2003			05/21/2003	
Waiahole Ditch	00649	Anthony J. Fraiola, Jr.	Waikane Tunnel 2	3-2953-002				01/14/2003	04/07/2003	04/21/2003			05/21/2003	
Waiahole Ditch	00875	Syngenta Hawaii LLC	Kahana Tunnel 1	3-3154-001	1.284	192004001 192004003 192004005 192004006	Irrigation for 849 acres of seed corn, soy, & livestock	08/26/2009	09/18/2009	10/02/2009		04/30/2010	01/20/2011	
Waiahole Ditch	00875	Syngenta Hawaii LLC	Waiahole Main Tunnel	3-2853-001				08/26/2009	09/18/2009	10/02/2009		04/30/2010	01/20/2011	
Waiahole Ditch	00875	Syngenta Hawaii LLC	Uwao Tunnel Ext	3-2953-003				08/26/2009	09/18/2009	10/02/2009		04/30/2010	01/20/2011	
Waiahole Ditch	00875	Syngenta Hawaii LLC	Waiahole Uwao Tunnel	3-2953-001				08/26/2009	09/18/2009	10/02/2009		04/30/2010	01/20/2011	
Waiahole Ditch	00875	Syngenta Hawaii LLC	Waiawa Dev Tun Exit	3-2657-005				08/26/2009	09/18/2009	10/02/2009		04/30/2010	01/20/2011	
Waiahole Ditch	00875	Syngenta Hawaii LLC	Waikane Tunnel 1	3-3053-001				08/26/2009	09/18/2009	10/02/2009		04/30/2010	01/20/2011	
Waiahole Ditch	00875	Syngenta Hawaii LLC	Waikane Tunnel 2	3-2953-002				08/26/2009	09/18/2009	10/02/2009		04/30/2010	01/20/2011	

Notes: WMA = Water Management Area; WUP = Water use permit; mgd = million gallons per day, requested amount; PN2 = 2nd Public Notice; Object = Objection Deadline; PH = Public Hearing Date, if necessary. If a public hearing is required, applications go before the CWRM within 180 days, otherwise within 90 days.

Report Parameters

WUP Type: Water Use Permit Application, Administrative Modification, Transfer, CWRM Revocation Action

Oahu

Aquifer System	WUP No	Applicant	Well Name	Well No.	mgd	TMK	Use Description	Accepted	PN2	Object	PH	Deadline	Agenda	Final Action
Waiahole Ditch	00907	State of Hawaii Department of Agriculture Oahu, HDOA	Kahana Tunnel 1	3-3154-001	0.422	194002080	Irrigation for 123 acres diversified crops over 26 lots (ave 4.7 acres)	01/03/2011	02/04/2011	02/21/2011		04/03/2011		
Waiahole Ditch	00907	State of Hawaii Department of Agriculture Oahu, HDOA	Uwao Tunnel Ext	3-2953-003				01/03/2011	02/04/2011	02/21/2011		04/03/2011		
Waiahole Ditch	00907	State of Hawaii Department of Agriculture Oahu, HDOA	Waiahole Main Tunnel	3-2853-001				01/03/2011	02/04/2011	02/21/2011		04/03/2011		
Waiahole Ditch	00907	State of Hawaii Department of Agriculture Oahu, HDOA	Waiahole Uwao Tunnel	3-2953-001				01/03/2011	02/04/2011	02/21/2011		04/03/2011		
Waiahole Ditch	00907	State of Hawaii Department of Agriculture Oahu, HDOA	Waiawa Dev Tun Exit	3-2657-005				01/03/2011	02/04/2011	02/21/2011		04/03/2011		
Waiahole Ditch	00907	State of Hawaii Department of Agriculture Oahu, HDOA	Waikane Tunnel 1	3-3053-001				01/03/2011	02/04/2011	02/21/2011		04/03/2011		
Waiahole Ditch	00907	State of Hawaii Department of Agriculture Oahu, HDOA	Waikane Tunnel 2	3-2953-002				01/03/2011	02/04/2011	02/21/2011		04/03/2011		
Waipahu-Waiawa	00954	Monsanto Company - Oahu	Kunia Farm 1	3-2402-006	2.636	192001001	backup to WUP 828 in emergencies (if existing Waiahole Ditch system fails)	05/04/2012	05/25/2012	06/11/2012		08/02/2012	12/19/2012	

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Report Parameters

WUP Type: Water Use Permit Application, Administrative Modification, Transfer, CWRM Revocation Action

Oahu

Aquifer System	WUP No	Applicant	Well Name	Well No.	mgd	TMK	Use Description	Accepted	PN2	Object	PH	Deadline	Agenda	Final Action
Ewa-Kunia	01105	White Labels Venture LLC	The Groves	3-2104-002	0.151	192003098	AGRCP (coconut)	04/09/2021	06/25/2021	07/09/2021		07/08/2021	09/21/2021	
						192003098	AGRCP (citrus)							
						192003098	AGRCP (mango)							
						192003098	AGRON (flowering trees)							
						192003098	AGRLI (5 horses)							
						192003098	AGRCP (vertical farming)							
						192003098	AGRCP (vine crops dragon fruit)							
						192003098	AGROTH (grass-habitat maintenance)							
						192003098	ACRCP (avocado)							
						192003098	AGROTH (grass-landscaping areas)							
Waialua	01109	Ka'ala Ranch LLC	Ka'ala Ranch 2	3-3306-033	0.360	166027010	Irrigation for 20 acres Cacao	04/15/2021	12/13/2024	12/30/2024		07/14/2021		
						166027010	Irrigation 70 acres for cattle livestock							
						166027010	6 domestic units							
						166027010	Irrigation for 34 acres Hemp							
						166027010	Irrigation for 20 acres Tumeric							
Waimanalo	01121	Nichols, Kitty D Trust	KNICHOLS 2022	3-2043-003	0.006	141024081	Existing farm dwelling	05/18/2022	03/08/2024	03/22/2024		08/16/2022		
						141024081	Turf							
						141024081	Ornamentals and nursery plants							
Koolauloa	01119	Patrick Morris (Kahuku Maluhia LLC)	Maluhia 2021	3-4158-019	0.038	156005002	AGRAQ	07/10/2023	08/25/2023	09/08/2023		10/08/2023		
						156005002	Domestic							
Waipahu-Waiawa	01185	Guyland LLC	Hawaii Country Club	3-2603-001	0.446	194004009	DOM	01/23/2024	03/22/2024	04/09/2024		04/22/2024		
						194004020	DOMNC							
						194004020	IRRGC							

Notes: WMA = Water Management Area; WUP = Water use permit; mgd = million gallons per day, requested amount; PN2 = 2nd Public Notice; Object = Objection Deadline; PH = Public Hearing Date, if necessary. If a public hearing is required, applications go before the CWRM within 180 days, otherwise within 90 days.

Report Parameters

WUP Type: Water Use Permit Application, Administrative Modification, Transfer, CWRM Revocation Action

Oahu

Aquifer System	WUP No	Applicant	Well Name	Well No.	mgd	TMK	Use Description	Accepted	PN2	Object	PH	Deadline	Agenda	Final Action
Waipahu-Waiawa	01117	Honolulu Board of Water Supply, BWS	Waipio Hts III-3	3-2659-005	1.750	194003004	Municipal (A29 to A31 single family development)	09/23/2024	11/29/2024	12/13/2024		12/22/2024		
						194005052	Municipal (existing Kipapa Acres)							
						194006058	Municipal (A1 single family development)							
						194006059	Municipal (A1 single family development)							
						194006060	Municipal (A1 single family development)							
						194006061	Municipal (A1 single family development)							
						194006062	Municipal (A2 single family development)							
						194006063	Municipal (A1 single family development)							
						194006064	Municipal (A2 single family development)							
						194006068	Municipal (M2 multi-family development)							
						194006069	Municipal (A2 single family development)							
						194006077	Municipal (A3 single family development)							
						194006078	Municipal (A3 single family development)							
						194006079	Municipal (A3 single family development)							
						194006080	Municipal (A3 single family development)							
						194006081	Municipal (A3 single family development)							
						194006082	Municipal non-potable (Community Park)							
						194006084	Municipal (A2 single family development)							
						194006085	Municipal (A2 single family development)							
						194006086	Municipal (A1 single family development)							
						194006087	Municipal (A1 single family development)							
						194006088	Municipal (A1 single family							

Notes: WMA = Water Management Area; WUP = Water use permit; mgd = million gallons per day, requested amount; PN2 = 2nd Public Notice; Object = Objection Deadline; PH = Public Hearing Date, if necessary. If a public hearing is required, applications go before the CWRM within 180 days, otherwise within 90 days.

Report Parameters

WUP Type: Water Use Permit Application, Administrative Modification, Transfer, CWRM Revocation Action

Oahu

Aquifer System	WUP No	Applicant	Well Name	Well No.	mgd	TMK	Use Description	Accepted	PN2	Object	PH	Deadline	Agenda	Final Action
							development)							
						194006090	Municipal (A1 single family development)							
						194006091	Municipal (A4 single family development)							
						194006091	Municipal non-potable (Kalahikiola Park)							
						194006093	Municipal (I1 light industry development)							
						194006094	Municipal (I1 light industry development)							
						194006095	Municipal (I1 light industry development)							
						194006096	Municipal (I1 light industry development)							
						194006097	Municipal (I1 light industry development)							
						194006098	Municipal (I1 light industry development)							
						194006099	Municipal (I1 light industry development)							
						194006101	Municipal (I1 light industry development)							
						194006102	Municipal (I1 light industry development)							
						194006103	Municipal (I1 light industry development)							
						194006104	Municipal (I1 light industry development)							
						194006105	Municipal (I1 light industry development)							
						194006107	Municipal (M1b senior housing development)							
						194006108	Municipal (M1b senior housing development)							
						194006109	Municipal (M1a single family development)							
						194006110	Municipal (M1 medical center development)							
						194006113	Municipal (M7 commercial development)							
						194006115	Municipal (Fire Station, Community Center, and Neighborhood							

Notes: WMA = Water Management Area; WUP = Water use permit; mgd = million gallons per day, requested amount; PN2 = 2nd Public Notice; Object = Objection Deadline; PH = Public Hearing Date, if necessary. If a public hearing is required, applications go before the CWRM within 180 days, otherwise within 90 days.

Report Parameters

WUP Type: Water Use Permit Application, Administrative Modification, Transfer, CWRM Revocation Action

Oahu

Aquifer System	WUP No	Applicant	Well Name	Well No.	mgd	TMK	Use Description	Accepted	PN2	Object	PH	Deadline	Agenda	Final Action
							Businesses) 194006115 Municipal non-potable (Parks P1 and P3 to P8) 194006115 Municipal (A13, A14, A1, A23, A24, A28, M10 to M14, and M17 multi-family development) 194006115 Municipal (M8 and M9 commercial/residential mixed use development - commercial water use) 194006115 Municipal (A5 to A12, A17 to A22, and A25 to A27 single family development) 194006115 Municipal (M8 and M9 commercial/residential mixed use development - multi-family water use) 194006115 Municipal (Church, Day Care, and School) 194006117 Municipal (M3 commercial development) 194006119 Municipal (M5 commercial development) 194006122 Municipal (M6 commercial development) 194006123 Municipal (M4 commercial development)							
Waipahu-Waiawa	01117	Honolulu Board of Water Supply, BWS	Waipio Hts III-4	3-2659-006				09/23/2024	11/29/2024	12/13/2024		12/22/2024		
Waipahu-Waiawa	01199	Kunia Village Development Corporation	KVDC	3-2703-007	0.150	192005023 192005023 192005023	Marijuana Farm Hydroponic Lettuce / Fish Domestic	10/25/2024	12/13/2024	12/30/2024		01/23/2025		

46 records listed for the island of Oahu

Notes: WMA = Water Management Area; WUP = Water use permit; mgd = million gallons per day, requested amount; PN2 = 2nd Public Notice; Object = Objection Deadline; PH = Public Hearing Date, if necessary. If a public hearing is required, applications go before the CWRM within 180 days, otherwise within 90 days.

Stream Channel Alteration Permit (SCAP) Applications Bulletin

File ID	Applicant/Petitioner	Stream	Description	TMK	Accepted	90-day Deadline	Agenda	Final Action

No Stream Channel Alteration Permits Pending

File ID	Requestor	Stream	Description	TMK	Event Date	Completed	Project Impacts	Permit Requirement
Hawaii								
RFD.6328.8	BHE Renewables, LLC	Wailuku	BHE Renewables, Wailuku River Dredging Upstream of Power Plant	(3) 2-6-018:004	10/07/2024	11/20/2024	Stream; Repair	NO
1 records for the island of Hawaii								
Oahu								
RFD.6338.3	Aupuni Viela	Kaukonahua	Concrete Road Erosion Repair, Kaukonahua	(1) 6-7-000:000	10/24/2024	11/22/2024	Stream; Repair	NO
RFD.6330.3	Bills Engineering, Inc.	Kapālama Stream	City & County of Honolulu, Restoration of CRM Channel Walls, Kapalama	(1) 1-6-005:000	10/09/2024	11/20/2024	Stream; Repair	NO
RFD.6318.3	Jim Hayes (Planning Solutions, Inc.)	Kamiloiki	Anapalau Street Channel Erosion Control Improvements, Hawaii Kai	(1) 3-9-048:020 (1) 3-9-048:021 (1) 3-9-048:029 (1) 3-9-048:032 (1) 3-9-048:033 (1) 3-9-048:034	08/30/2024	11/25/2024	Repair	NO
RFD.6215.3	Yogi Kwong Engineers	Kaaawa	BWS Test Boring, Kaaawa	(1) 3-7-007:056	02/02/2024			
4 records for the island of Oahu								

Project Impacts: *Stream = Project area is considered a stream (perennial or intermittent); Channel = Project will impact the stream channel; Instream = May impact instream uses; Repair = Project is considered repair and maintenance; Complete = Project is completed.* ***Permit Requirements:*** *Yes = SCAP is required; No = SCAP is not required; Need Info = SCAP may be required, but more information is necessary; YES-ATF = Project is complete and an After-the-Fact SCAP is required*

File ID	Applicant/Petitioner	Stream	Description	TMK	Accepted	90-day Deadline	Agenda	Final Action
Maui								
SDWP.5722.6	Cynthia Driskill	Waipio Iki	Driskill, Application to Abandon, Waipio Iki, Paia	(2) 2-9-007:022	07/12/2021	10/10/2021		
SDWP.5691.6	Seth Marshall		Marshall, Application to Abandon, Unnamed Spring, Haiku	(2) 2-9-007:017 (2) 2-9-007:046	07/12/2021	10/10/2021		
SDWP.5508.6	Patrick and Naomi Guth (Guth Farms)	Kahoma	Guth Farms, 100,000 gpd for Commercial Diversified Agr and Kalo, After-The-Fact Application, Kahoma	(2) 4-5-016:888 (2) 4-5-017:005 (2) 4-5-017:007 (2) 4-5-017:888	03/25/2021	06/23/2021		
SDWP.5290.6	Fredrick Swaroop Honig (Spirit of Aloha)	Kealii	Spirit of Aloha Temple, 72,000 gpd for Kalo and Div. Ag, Kealii	(2) 2-8-004:032	06/24/2024	09/22/2024	09/17/2024	11/19/2024
4 records for the island of Maui								
Oahu								
SDWP.1610.3	Waimea Valley Adventure Park	Kamananui	ATF Diversion at Kamananui (OA-294). Waiting for SMA. Waimea	(1) 6-1-002:002	11/23/1999	02/21/2000		
1 records for the island of Oahu								

File ID	Applicant/Petitioner	Stream	Description	TMK	Accepted	180-day Deadline	Agenda	Final Action
Kauai								
PAIFS.5667.2	Commission on Water Resource Management, CWRM	North Fork Wailua River, Waikoko Stream	Waikoko Stream and North Fork Wailua River, Wailua, Kauai		06/01/2018	11/28/2018	8/21/2018	
1 records for the island of Kauai								
Maui								
PAIFS.5627.6	Commission on Water Resource Management, CWRM	Honokowai Stream	Commission-initiated PAIFS, Honokowai Stream, West Maui		08/08/2019	02/04/2020		
1 records for the island of Maui								
Molokai								
PAIFS.5153.4	Earthjustice	Kaunankakai Stream, Kawela Stream, Manawainui Stream, Waikolu Stream	Molokai No Ka Heke's Combined PAIIFS for Waikolu, Kawela, Manawainui, Kaunakakai Streams		07/01/2019	12/28/2019		
1 records for the island of Molokai								
Oahu								
PAIFS.5666.3	Commission on Water Resource Management, CWRM	He'eia Stream	Commission-initiated PAIFS, Heeia Stream, Heeia, Oahu		09/25/2020	03/24/2021		
PAIFS.3574.3	Bay View Golf Park, Inc.	Kawa	PAIFS, Kawa Stream, Well Impacts, Kaneohe, Oahu (OA-305)	(1) 4-5-030:001	03/09/2000	09/05/2000		
PAIFS.3573.3	Waimea Valley Adventure Park	Kamananui	PAIFS, Kamananui Stream, Diversion for Irrigation Use, Waimea, Oahu	(1) 6-1-002:002	11/23/1999	05/21/2000		
PAIFS.3570.3	Luana Hills Country Club	Ainoni	PAIFS, Ainoni Stream, Well Impacts, Kailua, Oahu (OA-218)	(1) 4-2-008:001 (1) 4-2-009:001	02/28/1997	08/27/1997	10/22/1997	
PAIFS.3569.3	Luana Hills Country Club	Maunawili	PAIFS, Maunawili Stream, Well Impacts, Kailua, Oahu (OA-218)	(1) 4-2-008:001 (1) 4-2-009:001	02/28/1997	08/27/1997	10/22/1997	
PAIFS.3568.3	Luana Hills Country Club	Omao	PAIFS, Omao Stream, Well Impacts, Kailua, Oahu (OA-218)	(1) 4-2-008:001 (1) 4-2-009:001	02/28/1997	08/27/1997	10/22/1997	
PAIFS.3567.3	Luana Hills Country Club	Makawao	PAIFS, Makawao Stream, Well Impacts, Kailua, Oahu (OA-218)	(1) 4-2-008:001 (1) 4-2-009:001	02/28/1997	08/27/1997	10/22/1997	
PAIFS.3560.3	Alan Brown	Kaalaea	PAIFS, Kaalaea Stream, Diversion for Irrigation Use, Kahaluu, Oahu	(1) 4-7-004:009	05/21/1985	11/17/1985		
8 records for the island of Oahu								

Surface Water Use Permit (SWUP) Applications Bulletin

Hydrologic Unit Codes for Designated Surface Water Management Areas

Maui: 6001 = Waikapu; 6022 Waihee; 6023 Waiehu; 6024 = Iao

Hydro Unit	Event ID	Applicant/Petitioner	Water Source	Water Use Category	Amount (mgd)	Accept Date	Public Notice #1	Public Notice #2	Objections Deadline	Public Hearing	90 day Deadline	Agenda	Final Action
Maui													
6022	5880	Na Mala o Waihee Private Water Co.	Spreckels Ditch Various TMKs	AGR	0.0550	04/24/2023	04/26/2023	05/03/2023	05/17/2023		07/23/2023		
6024	5904	Waikapu Gardens Homeowners Association	Iao-Waikapu Ditch Various TMKs	IRR	0.0440	04/24/2023	04/26/2023	05/03/2023	05/17/2023		07/23/2023		

2 records for the island of Maui

Water Use Categories: AGR=Agriculture; DOM=Domestic; IND=Industrial; IRR=Irrigation; MIL=Military; MUN=Municipal

**If a public hearing is required, applications go before the CWRM within 180 days, otherwise within 90 days.

APPENDIX N

Summary of New Water Demands for the Mākena Mauka Project

Required Supply for the Mākena Mauka Project (Exclusive of Workforce Housing in M-2 and M-3 Lots) to be Supplied by Private Water System

Use	No. of Units	Potable GPD/Unit	Irrigation GPD/Unit	Potable GPD	Irrigation GPD
Single Family	180	300	500	54,000	90,000
Multi-Family	363	300	300	108,900	108,900
Golf Course Amenity Building	- -	- -	- -	42,900	31,400
Other Water Use	- -	- -	- -	19,000	- -
Park	6.7 (Acres)	- -	1,700 / Acre	- -	11,390
South Golf Course	65 (Acres)	- -	- -	- -	388,500
Total Average Demand				**224,800**	**630,190**
Total Maximum Demand (1.5x Average)				**337,200**	**945,285**

This table was modified from Table 2 Tom Nance's Water Resources Assessment for the Makena Mauka Project dated November 2025 to include the South Golf Course using data provided by SSFM.

Required Supply for Workforce Housing in Lots M-2 and M-3 at Mākena Mauka Project to be Supplied by MDWS

Use	No. of Units	Potable GPD/Unit	Potable GPD
Single Family	15	600	9,000
Multi-Family	94	560[1]	52,640
Total Average Demand			**61,640**
Total Maximum Demand (1.5x Average)			**92,460**

[1] Estimated consumption demand taken from table 100-18 of MDWS Standards.

Demand Summary for the Mākena Mauka Project without RO recovery

Item	Potable GPD	Irrigation GPD	Total GPD
Average Demand to MDWS	61,640	N/A	**61,640**
Maximum Demand to MDWS CMS	92,460	N/A	**92,460**
Average Demand for Private System	224,800	630,190	**854,990**
Maximum Demand for Private System	337,200	945,285	**1,282,485**
Total Average Demand	**286,440**	**630,190**	**916,630**
Total Maximum Demand	**429,660**	**945,285**	**1,374,945**

This table totals demands from the above two tables.

Demand Summary for the Mākena Mauka Project with RO Recovery by Category

Category	Total Average Demand GPD (with RO Recovery)	Total Maximum Demand GPD (with RO Recovery)
Potable (supplied by private water system)	**345,846**	**518,769**
Potable Affordable Housing (supplied by MDWS CMS)	**61,640**	**92,460**
Non-Potable Irrigation (supplied by private water system)	**630,190**	**945,285**
Total Demand	**1,037,676**	**1,556,514**

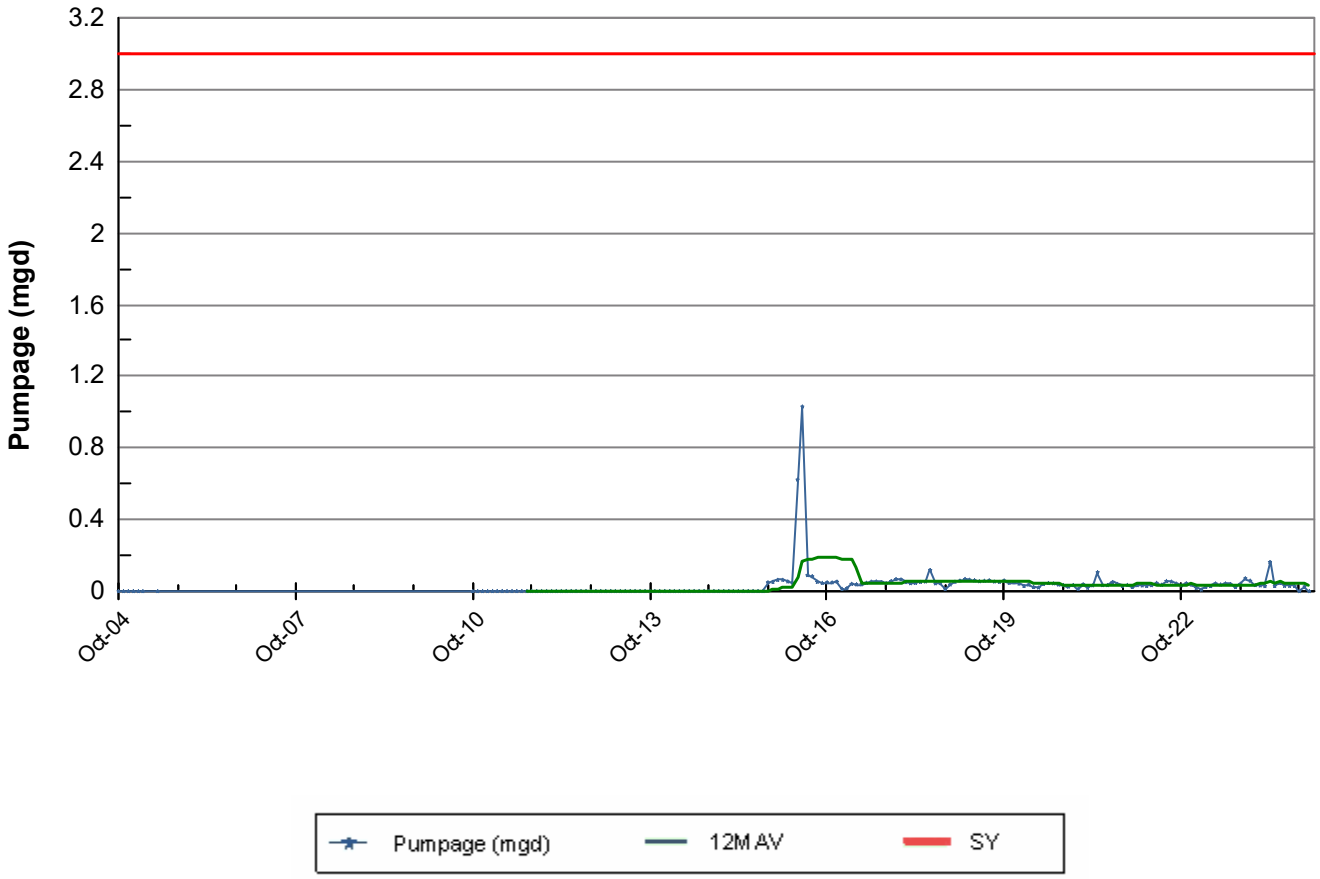
Total Required Supply Needed to be Pumped from Private Well with 65% RO Recovery

Item	Potable GPD	Irrigation GPD
Average Consumption Demand	224,800	630,190
Average Well Demand	345,846	630,190
	Total Average Well Demand	976,036
Maximum Consumption Demand	337,200	945,285
Maximum Well Demand	518,769 (RO Treatment Required with 65% Recovery)	945,285 (no RO treatment needed)
	Total Maximum Well Demand	**1,464,054**

APPENDIX O

Monthly Pumpage Chart

12 Month Moving Average



Report Parameters

Date:	10/1/2004 - 01/13/2025
Island:	Maui
Well Owner:	All
Well Reporter:	All
Well # Prefix:	All
Aquifer Sector:	Wailuku
Aquifer:	60101 Waikapu
Water Quality:	Fresh (0-250 ppm), Brackish (251-16,999 ppm), Not Specified
Potable/Non-Potable:	All
TMK:	All
PWS:	All
Aquifer Type:	Alluvial, Basal, Caprock, Deep Fresh Water, Dike, Perched, Not
Pump Capacity:	Specified
Well Use:	All

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
October 2004	0.000		3.000
November 2004	0.000		3.000
December 2004	0.000		3.000
January 2005	0.000		3.000
February 2005	0.000		3.000
March 2005	0.000		3.000
April 2005			3.000
May 2005			3.000
June 2005	0.000		3.000
July 2005			3.000
August 2005			3.000
September 2005			3.000
October 2005			3.000
November 2005			3.000
December 2005			3.000
January 2006			3.000
February 2006			3.000
March 2006			3.000
April 2006			3.000
May 2006			3.000
June 2006			3.000
July 2006			3.000
August 2006			3.000
September 2006			3.000
October 2006			3.000
November 2006			3.000
December 2006			3.000
January 2007			3.000
February 2007			3.000
March 2007			3.000
April 2007			3.000
May 2007			3.000
June 2007			3.000
July 2007			3.000
August 2007			3.000
September 2007			3.000
October 2007			3.000
November 2007			3.000
December 2007			3.000
January 2008			3.000
February 2008			3.000
March 2008			3.000
April 2008			3.000
May 2008			3.000
June 2008			3.000
July 2008			3.000
August 2008			3.000
September 2008			3.000
October 2008			3.000
November 2008			3.000
December 2008			3.000
January 2009			3.000
February 2009			3.000
March 2009			3.000
April 2009			3.000
May 2009			3.000
June 2009			3.000
July 2009			3.000
August 2009			3.000
September 2009			3.000
October 2009			3.000
November 2009			3.000
December 2009			3.000
January 2010			3.000
February 2010			3.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
March 2010			3.000
April 2010			3.000
May 2010			3.000
June 2010			3.000
July 2010			3.000
August 2010			3.000
September 2010			3.000
October 2010	0.000		3.000
November 2010	0.000		3.000
December 2010	0.001		3.000
January 2011	0.001		3.000
February 2011	0.001		3.000
March 2011	0.001		3.000
April 2011	0.001		3.000
May 2011	0.001		3.000
June 2011	0.001		3.000
July 2011	0.001		3.000
August 2011	0.001		3.000
September 2011	0.001	0.000	3.000
October 2011	0.001	0.001	3.000
November 2011	0.001	0.001	3.000
December 2011	0.001	0.001	3.000
January 2012	0.001	0.001	3.000
February 2012	0.001	0.001	3.000
March 2012	0.001	0.001	3.000
April 2012	0.001	0.001	3.000
May 2012	0.001	0.001	3.000
June 2012	0.001	0.001	3.000
July 2012	0.001	0.001	3.000
August 2012	0.001	0.001	3.000
September 2012	0.001	0.001	3.000
October 2012	0.001	0.001	3.000
November 2012	0.001	0.001	3.000
December 2012	0.001	0.001	3.000
January 2013	0.001	0.001	3.000
February 2013	0.001	0.001	3.000
March 2013	0.001	0.001	3.000
April 2013	0.001	0.001	3.000
May 2013	0.001	0.001	3.000
June 2013	0.001	0.001	3.000
July 2013	0.001	0.001	3.000
August 2013	0.001	0.001	3.000
September 2013	0.001	0.001	3.000
October 2013	0.001	0.001	3.000
November 2013	0.001	0.001	3.000
December 2013	0.001	0.001	3.000
January 2014	0.001	0.001	3.000
February 2014	0.001	0.001	3.000
March 2014	0.001	0.001	3.000
April 2014	0.001	0.001	3.000
May 2014	0.001	0.001	3.000
June 2014	0.001	0.001	3.000
July 2014	0.001	0.001	3.000
August 2014	0.001	0.001	3.000
September 2014	0.001	0.001	3.000
October 2014	0.001	0.001	3.000
November 2014	0.001	0.001	3.000
December 2014	0.001	0.001	3.000
January 2015	0.001	0.001	3.000
February 2015	0.001	0.001	3.000
March 2015	0.001	0.001	3.000
April 2015	0.001	0.001	3.000
May 2015	0.001	0.001	3.000
June 2015	0.001	0.001	3.000
July 2015	0.001	0.001	3.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
August 2015	0.001	0.001	3.000
September 2015	0.001	0.001	3.000
October 2015	0.050	0.005	3.000
November 2015	0.052	0.009	3.000
December 2015	0.063	0.014	3.000
January 2016	0.064	0.019	3.000
February 2016	0.054	0.024	3.000
March 2016	0.048	0.028	3.000
April 2016	0.623	0.080	3.000
May 2016	1.031	0.166	3.000
June 2016	0.089	0.173	3.000
July 2016	0.083	0.180	3.000
August 2016	0.052	0.184	3.000
September 2016	0.047	0.188	3.000
October 2016	0.050	0.188	3.000
November 2016	0.049	0.188	3.000
December 2016	0.053	0.187	3.000
January 2017	0.013	0.183	3.000
February 2017	0.017	0.180	3.000
March 2017	0.041	0.179	3.000
April 2017	0.038	0.130	3.000
May 2017	0.039	0.048	3.000
June 2017	0.047	0.044	3.000
July 2017	0.053	0.042	3.000
August 2017	0.054	0.042	3.000
September 2017	0.051	0.042	3.000
October 2017	0.045	0.042	3.000
November 2017	0.056	0.042	3.000
December 2017	0.068	0.043	3.000
January 2018	0.066	0.048	3.000
February 2018	0.050	0.051	3.000
March 2018	0.044	0.051	3.000
April 2018	0.047	0.052	3.000
May 2018	0.052	0.053	3.000
June 2018	0.054	0.053	3.000
July 2018	0.118	0.059	3.000
August 2018	0.043	0.058	3.000
September 2018	0.045	0.057	3.000
October 2018	0.012	0.055	3.000
November 2018	0.037	0.053	3.000
December 2018	0.053	0.052	3.000
January 2019	0.059	0.051	3.000
February 2019	0.069	0.053	3.000
March 2019	0.064	0.054	3.000
April 2019	0.061	0.056	3.000
May 2019	0.055	0.056	3.000
June 2019	0.059	0.056	3.000
July 2019	0.061	0.052	3.000
August 2019	0.054	0.052	3.000
September 2019	0.052	0.053	3.000
October 2019	0.060	0.057	3.000
November 2019	0.047	0.058	3.000
December 2019	0.049	0.058	3.000
January 2020	0.042	0.056	3.000
February 2020	0.029	0.053	3.000
March 2020	0.037	0.051	3.000
April 2020	0.023	0.047	3.000
May 2020	0.021	0.044	3.000
June 2020	0.040	0.043	3.000
July 2020	0.046	0.042	3.000
August 2020	0.044	0.041	3.000
September 2020	0.037	0.040	3.000
October 2020	0.034	0.037	3.000
November 2020	0.025	0.036	3.000
December 2020	0.034	0.034	3.000

Month Year	Pumpage (Mgd)	12MAV (Mgd)	SY (Mgd)
January 2021	0.013	0.032	3.000
February 2021	0.039	0.033	3.000
March 2021	0.019	0.031	3.000
April 2021	0.032	0.032	3.000
May 2021	0.106	0.039	3.000
June 2021	0.034	0.039	3.000
July 2021	0.034	0.038	3.000
August 2021	0.051	0.038	3.000
September 2021	0.041	0.039	3.000
October 2021	0.029	0.038	3.000
November 2021	0.035	0.039	3.000
December 2021	0.023	0.038	3.000
January 2022	0.033	0.040	3.000
February 2022	0.032	0.039	3.000
March 2022	0.029	0.040	3.000
April 2022	0.033	0.040	3.000
May 2022	0.047	0.035	3.000
June 2022	0.036	0.035	3.000
July 2022	0.057	0.037	3.000
August 2022	0.054	0.037	3.000
September 2022	0.042	0.038	3.000
October 2022	0.032	0.038	3.000
November 2022	0.044	0.039	3.000
December 2022	0.037	0.040	3.000
January 2023	0.018	0.039	3.000
February 2023	0.009	0.037	3.000
March 2023	0.024	0.036	3.000
April 2023	0.029	0.036	3.000
May 2023	0.044	0.035	3.000
June 2023	0.037	0.036	3.000
July 2023	0.043	0.034	3.000
August 2023	0.040	0.033	3.000
September 2023	0.023	0.032	3.000
October 2023	0.042	0.032	3.000
November 2023	0.072	0.035	3.000
December 2023	0.059	0.037	3.000
January 2024	0.034	0.038	3.000
February 2024	0.031	0.040	3.000
March 2024	0.028	0.040	3.000
April 2024	0.162	0.051	3.000
May 2024	0.029	0.050	3.000
June 2024	0.047	0.051	3.000
July 2024	0.030	0.050	3.000
August 2024	0.030	0.049	3.000
September 2024	0.029	0.049	3.000
October 2024	0.000	0.046	3.000
November 2024	0.027	0.042	3.000
December 2024	0.000	0.037	3.000
January 2025			3.000

APPENDIX P

15.6.6 Irrigation Demand Projections

Reported irrigation use of 3.68 mgd within the aquifer sector includes brackish water used for golf course, resort and landscaping irrigation purposes. Over 75 percent of irrigation withdrawals are from the Kamaʻole Aquifer but the data is likely under-reported. This is in addition to irrigation uses served by the MDWS Central and Upcountry Systems. Although irrigation needs may not correspond directly to population growth, it's prudent to project an increase in demand based on population growth, which is at a higher rate than the de facto population growth ("de facto" includes visitors). Demand would increase from 3.68 mgd to 5.59 mgd over the planning period.

In addition to groundwater withdrawals for irrigation, recycled water from the Kīhei Wastewater Reclamation Facility provides up to 1.75 mgd during peak summer months. Reclaimed water is distributed to 24 commercial properties in South Maui for landscape and agricultural irrigation, cooling, fire control, erosion and dust control, drinking water for cattle and other uses.[63] The volume of R-1 water reused varies seasonally. It is estimated that about 1 mgd is reused on average for irrigation purposes. An additional 0.08 mgd of reclaimed water is generated and used at the Mākena Resort, primarily for golf course irrigation. The reclamation facility is undergoing an upgrade to further integrate on-site reclaimed water generation and use.

Table 14-30 Planned Growth Wailuku ASEA and MDWS Central Maui System Service Area

Planned Growth Area	# Units	# Acres	Projected Demand (mgd)
Waiʻale	300+2,254	50+495	1.40 – 1.52
Puʻunani	450/TBD	209	0.75
Kāhili Rural Residential	TBD	218	0.65
Waikapū Tropical Plantation Town	1433	502	0.86 – 1.51
North Kīhei Residential	600	95	0.29 - 0.36
Kīhei Mauka, , and Pulehunui	1,500	583	0.90 – 1.75
Maui Research and Technology Park	1,250	437	0.98 – 1.03
Pulehunui	N/A	639	3.83
TOTAL		**3,228**	**9.6 – 11.04**

Table 14-33 Projected Consumption by CWRM Category, MDWS Central System to 2035

CWRM CATEGORY	2014	2015	2020	2025	2030	2035
Domestic Residential	12,700,856	13,917,175	15,503,723	17,137,436	19,042,779	20,817,699
Domestic Non-Residential	6,284,171	6,885,985	7,670,983	8,479,317	9,422,048	10,300,249
Industrial	611,938	670,541	746,982	825,696	917,497	1,003,014
Municipal	1,228,621	1,346,282	1,499,757	1,657,794	1,842,108	2,013,806
Agriculture	24,130	26,440	29,454	32,558	36,178	39,550
Irrigated	256,824	281,420	313,501	346,537	385,065	420,955
Military	17,232	18,882	21,034	23,251	25,836	28,244
Unknown	30,216	33,110	36,885	40,771	45,304	49,527
TOTAL GPD	21,153,987	23,179,835	25,822,320	28,543,360	31,716,815	34,673,044
TOTAL MGD	**21.154**	**23.180**	**25.822**	**28.543**	**31.717**	**34.673**

Figure 14-28 Projected Consumption by CWRM Category, MDWS Central System to 2035 (GPD)

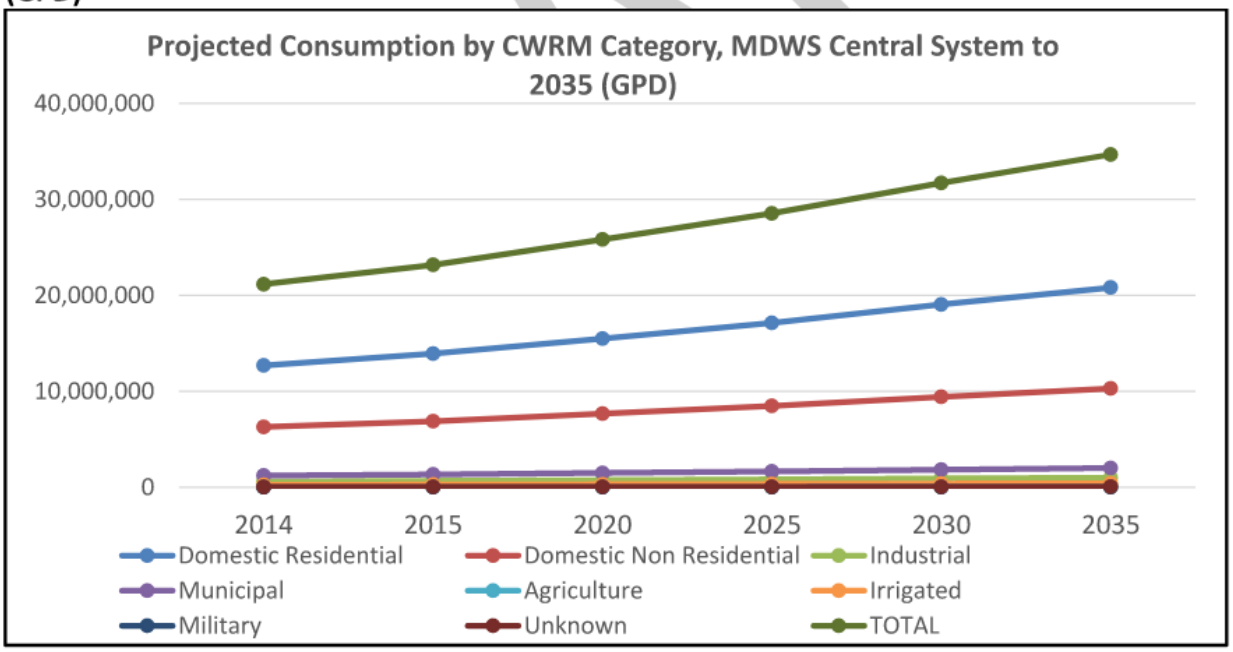


Table 16-31 Projected MDWS Consumption by CWRM Category, Koʻolau ASEA to 2035 (gpd)*

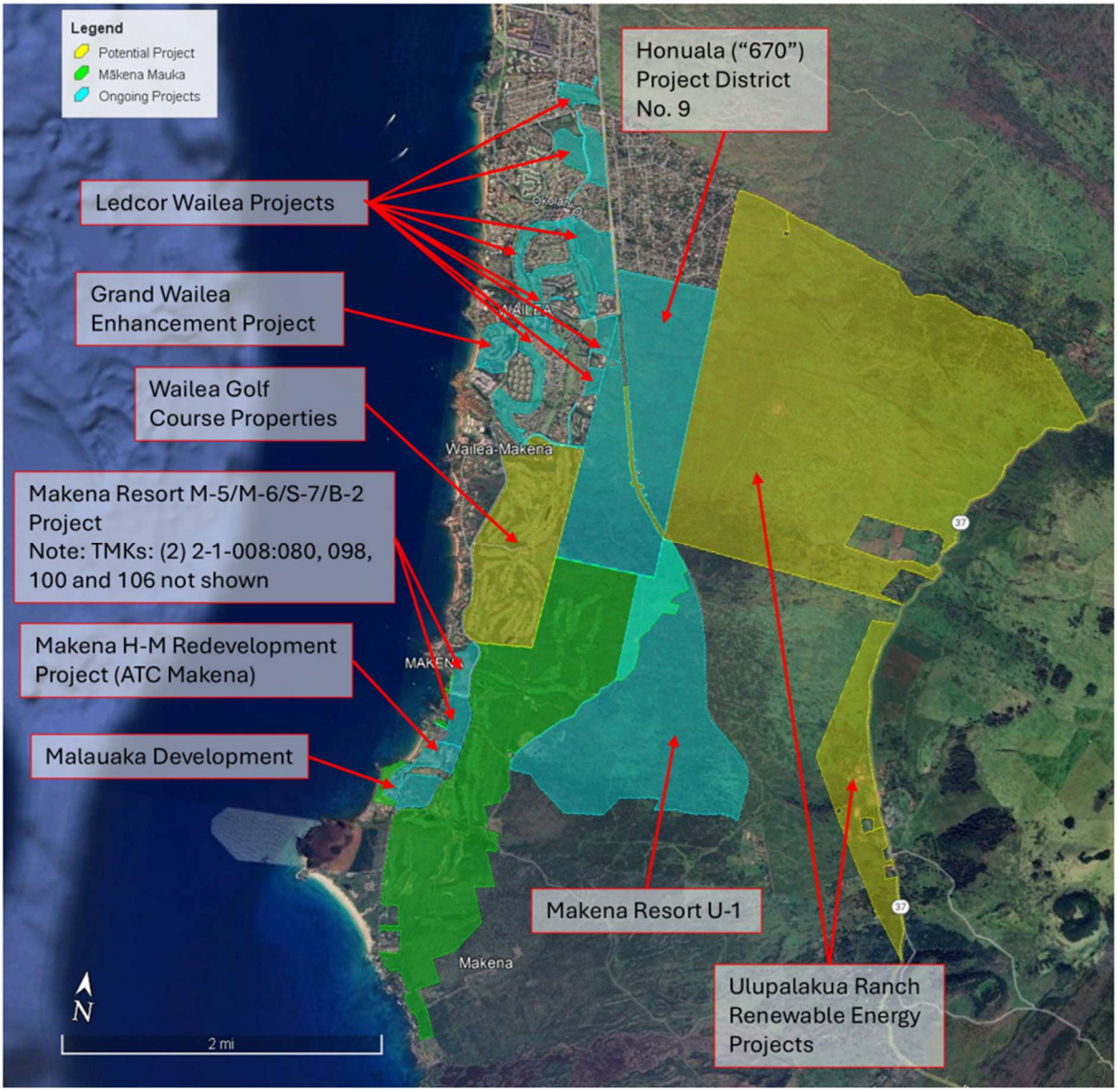
CWRM Categories	2014	2015	2020	2025	2030	2035
Domestic	955,189	964,930	978,693	987,487	996,275	999,729
Industrial	0	0	0	0	0	0
Municipal	11,016	11,128	11,287	11,388	11,490	11,530
Agriculture	1507	1,522	1,544	1,558	1,572	1,577
Irrigated	0	0	0	0	0	0
Military	0	0	0	0	0	0
Unknown	12,159	12,283	12,458	12,570	12,682	12,726
Total	**979,871**	**989,863**	**1,003,982**	**1,013,003**	**1,022,018**	**1,025,562**

Source: MDWS. Based on Calendar Year 2014 consumption billing data within the Koʻolau ASEA for MDWS Water Use Zone (WUZ) Subdistricts: Kokomo-Kaupakalua (311), Kuiaha (312), Haʻikū-Paʻuwela (313), Pukalani (316), Upper Kula (331), Lower Kula (333), Nahikū (913), Keʻanae (915).

*Includes water exported to Central ASEA and then supplied to MDWS Upcountry System customers located within Koʻolau ASEA.

APPENDIX Q

Summary of Proposed New Water Demands in the Makena Area



Ongoing and Potential Impact Projects Map

MALUAKA DEVELOPMENT

Estimated Supply for Maluaka Development

Use	No. of Units	Potable GPD/Unit	Potable GPD
Single-family	13	600	7,800
Multi-Family	6	560	3,360
Total Average Demand			**11,160**
Total Maximum Demand (1.5x Average)			**16,740**

Number of single and multi family units provided by MMP.

Estimated consumption demand taken from table 100-18 of MDWS Standards.

All demands assumed to be supplied by MDWS.

MAKENA REDEVELOPMENT PROJECT

Based on information provided to us by MMP, this redevelopment plans to convert a former hotel 310-room hotel at the Makena Beach & Golf Club Resort into a combination of hotel, condominium, beach cottage units, together with a spa hale. A total of 65 units are proposed.

Since this project is a conversion, we will assume that there will be no additional water demands that comes with this redevelopment.

MAKENA RESORT

Estimated Required Supply for Makena Resort

Use	No. of Units	Potable GPD/Unit	Potable GPD
Multi-family	30	560	16,800
Single-family cottages	18	600	10,800
Single-family Custom Lot	32	600	19,200
Transient Vacation Rental (TVR) Units	9	600	5,400
Condos	14	560	7,840
Commercial Space	0.627 acres	600 gal/acre	376.2
Total Average Demand			**60,416**
Total Maximum Demand (1.5x Average)			**90,624**

Number of units and planned use provided by MMP.

Supplied by MDWS CMS

[1] Assume same demands as Single Family

[2] Assume same demands as Multi-Family

WAILEA 670/ Honua'ula

In the Honua'ula FEIS, they state that they will not rely upon on MDWS, and instead will develop their own private water system. Their EIS estimates that a total average of 1.7 Mgd will be withdrawn from brackish wells in the Kama'ole ASA.

LEDCOR

Estimated Supply for Ledcor Wailea Projects

Average Demand (gpd)	Maximum Demand (gpd)
558,000	837,000

Demands taken from the Ledcor South Maui Properties and Improvements EIS.
To be supplied by MDWS per the Ledcor South Maui Properties and Improvements EIS.

GRAND WAILEA ENHANCEMENT PROJECT

Estimated Required Supply for Grand Wailea Enhancement Project

Use	No. of Units	Potable GPD/Unit	Potable GPD
Resort	151	350	52,850
		Total Average Demand	**52,850**
		Total Maximum Demand (1.5x Average)	**79,275**

Number of resort units provided by MMP.
Assumed to be supplied by MDWS.
Estimated consumption demand taken from table 100-18 of MDWS Standards.

PROPOSED H-2 RESIDENTIAL PROJECT

Estimated Required Supply for Proposed H-2 Residential Project

Use	Average Demand (gpd)	Maximum Demand (1.5x average) (gpd)
Domestic (potable)	47,700	71,550
Irrigation (non-potable)	66,400	99,600

Domestic demands to be supplied by MDWS per the Proposed H-2 Residential Project EA.
Non-potable water demands to be supplied by Makena Golf Course System per the Proposed H-2 Residential Project EA.
Estimated demands per the Proposed H-2 Residential Project EA .

MAKENA RESORT U-1 PROJECT

Estimated Required Supply for Makena Resort U-1 Project

Use	No. of Units	Potable GPD/Acre	Irrigation GPD/Unit	Potable GPD	Irrigation GPD
Main residences	36	1,000	4,000	36,000	144,000
Accessory Dwelling Unit (ADU)	36	600	600	21,600	21,600
Cattle Troughs	- -	15,000	- -	15,000	- -
Total Average Demand				**72,600**	**165,600**
Total Maximum Demand (1.5x Average)				**108,900**	**248,700**
Total average demand required to be pumped and treated with RO				**277,292**	
Total maximum demand required to be pumped and treated with RO				**415,938**	

Demands taken from TNWRE Water Resources Assessment for the MMP.
Assumed to be supplied from private wells.

WAILEA GOLF COURSE PROPERTIES

Based on information provided to us by MMP, Wailea Golf LLC proposes a planned, mix-use development among 214 acres, to include a resort hotel and between 856 and 1,070 housing units. This proposal has been included for possible land use designations in the South Maui Community Plan, awaiting review and approval by the Maui County Council in 2025. However, this information is too preliminary, and the demands are not taken into the total demands on Kama'ole Aquifer.

Ulupalakua Ranch Renewable Energy Projects

Based on information provided to us by MMP, the Paeahu Solar Project, a 15 MW solar array with 60 MWh battery storage, was proposed for Ulupalakua Ranch land. However, it is not currently proceeding. The Hawaii State Energy Office has announced plans for conducting a geothermal survey, so the potential exists for renewable energy projects at Ulupalakua Ranch.

DHHL Reservations

CWRM has established water reservations for DHHL of 2.547 Mgd in the Kama'ole ASA .

Demands to MDWS CMS		
Development	Total Average Demands to MDWS	Maximum Demands to MDWS
MMP Workforce Housing	61,640	92,460
Maluaka Development	11,160	16,740
Makena Resort	60,416	90,624
Ledcor	558,000	837,000
Grand Wailea Enhancement Project	52,850	79,725
H-2 Domestic Potable	47,700	71,550
Total	791,766	1,187,649

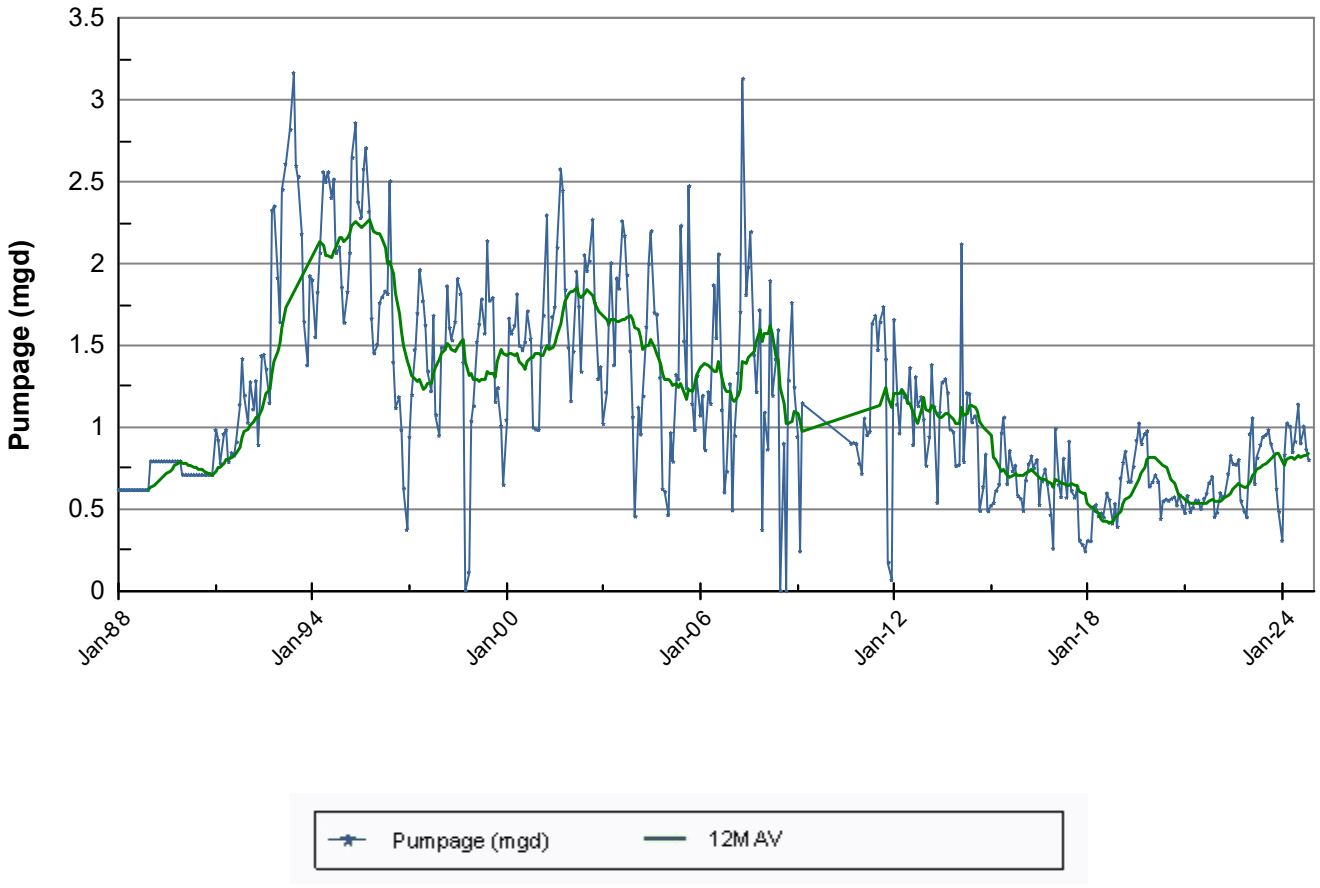
Total Demands on Kama'ole Aquifer		
Development	Total Average Demands on Aquifer	Maximum Average Demands on Aquifer
Current 12-MAV Use	3,660,000	3,660,000
MMP	976,036	1,464,054
U-1 Makena Ranch	277,292	415,938
Wailea 670/Honua'ula	1,700,000	2,550,000
H-2 Irrigation Non-Potable	66,400	99,600
Total Additional Pumpage (Excluding 12-MAV)	3,019,728	4,529,593
Total Pumpage (Including 12-MAV)	6,679,728	8,189,593
DHHL Reservations	2,547,000	2,547,000
Total Including DHHL Reservations	9,226,728	10,736,593

APPENDIX R

Monthly Pumpage Chart

12 Month Moving Average

ATC Makena Wells



Report Parameters

Date:	01/01/1988 - 01/07/2025
Island:	All
Well Owner:	ATC Makena Holdings, LLC
Well Reporter:	All
Well # Prefix:	All
Aquifer Sector:	All
Aquifer:	All
Water Quality:	Fresh (0-250 ppm), Brackish (251-16,999 ppm), Not Specified
Potable/Non-Potable:	All
TMK:	All
PWS:	All
Aquifer Type:	Alluvial, Basal, Caprock, Deep Fresh Water, Dike, Perched, Not
Pump Capacity:	Specified
Well Use:	All

Month Year	Pumpage (Mgd)	12MAV (Mgd)
January 1988	0.617	
February 1988	0.617	
March 1988	0.617	
April 1988	0.617	
May 1988	0.617	
June 1988	0.617	
July 1988	0.617	
August 1988	0.617	
September 1988	0.617	
October 1988	0.617	
November 1988	0.617	
December 1988	0.617	0.617
January 1989	0.792	0.632
February 1989	0.792	0.647
March 1989	0.792	0.661
April 1989	0.792	0.676
May 1989	0.792	0.690
June 1989	0.792	0.705
July 1989	0.792	0.719
August 1989	0.792	0.734
September 1989	0.792	0.749
October 1989	0.792	0.763
November 1989	0.792	0.778
December 1989	0.792	0.792
January 1990	0.711	0.786
February 1990	0.711	0.779
March 1990	0.711	0.772
April 1990	0.711	0.765
May 1990	0.711	0.758
June 1990	0.711	0.752
July 1990	0.711	0.745
August 1990	0.711	0.738
September 1990	0.711	0.731
October 1990	0.711	0.724
November 1990	0.711	0.718
December 1990	0.711	0.711
January 1991	0.984	0.734
February 1991	0.921	0.751
March 1991	0.780	0.757
April 1991	0.958	0.777
May 1991	0.983	0.800
June 1991	0.789	0.807
July 1991	0.844	0.818
August 1991	0.827	0.828
September 1991	0.909	0.844
October 1991	1.139	0.880
November 1991	1.417	0.939
December 1991	1.194	0.979
January 1992	1.028	0.983
February 1992	1.275	1.012
March 1992	1.109	1.039
April 1992	1.282	1.066
May 1992	0.892	1.059
June 1992	1.436	1.113
July 1992	1.443	1.163
August 1992	1.355	1.207
September 1992	1.148	1.227
October 1992	2.323	1.325
November 1992	2.348	1.403
December 1992	1.912	1.463
January 1993	1.641	1.514
February 1993	2.451	1.612
March 1993	2.608	1.737
April 1993		
May 1993	2.817	

Month Year	Pumpage (Mgd)	12MAV (Mgd)
June 1993	3.164	
July 1993	2.596	
August 1993	2.530	
September 1993	2.180	
October 1993	1.645	
November 1993	1.378	
December 1993	1.923	
January 1994	1.899	
February 1994	1.551	
March 1994	1.824	
April 1994	2.064	2.131
May 1994	2.558	2.109
June 1994	2.498	2.054
July 1994	2.557	2.050
August 1994	2.401	2.040
September 1994	2.513	2.068
October 1994	2.065	2.103
November 1994	2.102	2.163
December 1994	1.854	2.157
January 1995	1.639	2.135
February 1995	1.827	2.158
March 1995	2.063	2.178
April 1995	2.646	2.227
May 1995	2.857	2.252
June 1995	2.374	2.241
July 1995	2.277	2.218
August 1995	2.576	2.233
September 1995	2.705	2.249
October 1995	2.316	2.270
November 1995	1.664	2.233
December 1995	1.452	2.200
January 1996	1.505	2.189
February 1996	1.758	2.183
March 1996	1.794	2.160
April 1996	1.830	2.092
May 1996	1.814	2.005
June 1996	2.503	2.016
July 1996	1.396	1.943
August 1996	1.117	1.821
September 1996	1.186	1.695
October 1996	0.982	1.583
November 1996	0.627	1.497
December 1996	0.375	1.407
January 1997	0.940	1.360
February 1997	1.198	1.313
March 1997	1.474	1.287
April 1997	1.696	1.276
May 1997	1.961	1.288
June 1997	1.770	1.227
July 1997	1.623	1.246
August 1997	1.341	1.264
September 1997	1.220	1.267
October 1997	1.681	1.325
November 1997	1.076	1.363
December 1997	0.950	1.411
January 1998	1.488	1.456
February 1998	1.488	1.481
March 1998	1.860	1.513
April 1998	1.608	1.505
May 1998	1.531	1.470
June 1998	1.644	1.459
July 1998	1.907	1.483
August 1998	1.815	1.522
September 1998	1.395	1.537
October 1998	0.004	1.397

Month Year	Pumpage (Mgd)	12MAV (Mgd)
November 1998	0.115	1.317
December 1998	1.038	1.324
January 1999	1.129	1.294
February 1999	1.522	1.297
March 1999	1.629	1.278
April 1999	1.781	1.292
May 1999	1.573	1.296
June 1999	2.137	1.337
July 1999	1.774	1.326
August 1999	1.789	1.324
September 1999	1.155	1.304
October 1999	1.241	1.407
November 1999	1.008	1.481
December 1999	0.649	1.449
January 2000	1.045	1.442
February 2000	1.664	1.454
March 2000	1.572	1.449
April 2000	1.621	1.436
May 2000	1.811	1.455
June 2000	1.498	1.402
July 2000	1.470	1.377
August 2000	1.520	1.354
September 2000	1.708	1.401
October 2000	1.540	1.426
November 2000	0.999	1.425
December 2000	0.986	1.453
January 2001	0.984	1.448
February 2001	1.490	1.433
March 2001	1.682	1.442
April 2001	2.294	1.499
May 2001	1.494	1.472
June 2001	1.673	1.487
July 2001	1.733	1.509
August 2001	2.097	1.557
September 2001	2.574	1.629
October 2001	2.444	1.704
November 2001	1.840	1.774
December 2001	1.487	1.816
January 2002	1.160	1.831
February 2002	1.462	1.828
March 2002	1.951	1.851
April 2002	1.736	1.804
May 2002	1.340	1.791
June 2002	2.051	1.823
July 2002	1.955	1.841
August 2002	2.013	1.834
September 2002	2.268	1.809
October 2002	1.759	1.752
November 2002	1.295	1.706
December 2002	1.367	1.696
January 2003	1.021	1.685
February 2003	1.213	1.664
March 2003	1.629	1.637
April 2003	2.003	1.660
May 2003	1.379	1.663
June 2003	1.909	1.651
July 2003	1.847	1.642
August 2003	2.258	1.662
September 2003	2.168	1.654
October 2003	1.929	1.668
November 2003	1.465	1.682
December 2003	1.062	1.657
January 2004	0.456	1.610
February 2004	1.121	1.602
March 2004	0.957	1.546

Month Year	Pumpage (Mgd)	12MAV (Mgd)
April 2004	1.189	1.478
May 2004	1.612	1.498
June 2004	1.998	1.505
July 2004	2.197	1.534
August 2004	1.701	1.488
September 2004	1.689	1.448
October 2004	1.303	1.396
November 2004	0.624	1.326
December 2004	0.607	1.288
January 2005	0.465	1.289
February 2005	0.965	1.276
March 2005	0.791	1.262
April 2005	1.320	1.273
May 2005	1.293	1.246
June 2005	2.231	1.265
July 2005	1.524	1.209
August 2005	1.240	1.171
September 2005	2.473	1.236
October 2005	1.143	1.223
November 2005	0.983	1.253
December 2005	1.314	1.312
January 2006	1.072	1.362
February 2006	1.193	1.381
March 2006	0.860	1.387
April 2006	1.215	1.378
May 2006	1.144	1.366
June 2006	1.867	1.336
July 2006	1.545	1.337
August 2006	2.056	1.405
September 2006	1.104	1.291
October 2006	0.603	1.246
November 2006	0.730	1.225
December 2006	1.264	1.221
January 2007	0.493	1.173
February 2007	0.948	1.152
March 2007	1.331	1.192
April 2007	1.704	1.232
May 2007	3.128	1.398
June 2007	1.809	1.393
July 2007	1.977	1.429
August 2007	2.194	1.440
September 2007	1.440	1.468
October 2007	1.215	1.520
November 2007	1.714	1.602
December 2007	0.374	1.527
January 2008	1.090	1.577
February 2008	0.864	1.570
March 2008	1.893	1.617
April 2008	1.193	1.574
May 2008	1.416	1.432
June 2008	1.594	1.414
July 2008	0.000	1.249
August 2008	0.900	1.141
September 2008	0.000	1.021
October 2008	1.285	1.027
November 2008	1.759	1.031
December 2008	1.244	1.103
January 2009	0.942	1.091
February 2009	0.243	1.039
March 2009	1.147	0.977
April 2009		
May 2009		
June 2009		
July 2009		
August 2009		

Month Year	Pumpage (Mgd)	12MAV (Mgd)
September 2009		
October 2009		
November 2009		
December 2009		
January 2010		
February 2010		
March 2010		
April 2010		
May 2010		
June 2010		
July 2010		
August 2010		
September 2010	0.900	
October 2010	0.906	
November 2010	0.900	
December 2010	0.779	
January 2011	0.717	
February 2011	1.054	
March 2011	0.952	
April 2011	0.975	
May 2011	1.633	
June 2011	1.681	
July 2011	1.471	
August 2011	1.641	1.134
September 2011	1.734	1.204
October 2011	1.415	1.246
November 2011	0.175	1.186
December 2011	0.068	1.126
January 2012	1.656	1.205
February 2012	1.139	1.212
March 2012	0.963	1.213
April 2012	1.223	1.233
May 2012	1.184	1.196
June 2012	1.155	1.152
July 2012	1.363	1.143
August 2012	0.893	1.081
September 2012	1.306	1.045
October 2012	1.131	1.021
November 2012	1.184	1.105
December 2012	1.047	1.187
January 2013	0.766	1.113
February 2013	0.941	1.096
March 2013	1.381	1.131
April 2013	1.126	1.123
May 2013	0.540	1.069
June 2013	1.090	1.064
July 2013	1.274	1.057
August 2013	1.294	1.090
September 2013	1.211	1.082
October 2013	0.987	1.070
November 2013	0.970	1.052
December 2013	0.763	1.029
January 2014	0.769	1.029
February 2014	2.117	1.127
March 2014	0.789	1.078
April 2014	1.209	1.084
May 2014	1.205	1.140
June 2014	1.031	1.135
July 2014	1.067	1.118
August 2014	1.006	1.094
September 2014	0.490	1.034
October 2014	0.636	1.004
November 2014	0.834	0.993
December 2014	0.488	0.970
January 2015	0.522	0.950

Month Year	Pumpage (Mgd)	12MAV (Mgd)
February 2015	0.539	0.818
March 2015	0.613	0.803
April 2015	0.652	0.757
May 2015	0.964	0.737
June 2015	1.060	0.739
July 2015	0.654	0.705
August 2015	0.856	0.692
September 2015	0.733	0.713
October 2015	0.767	0.724
November 2015	0.582	0.703
December 2015	0.565	0.709
January 2016	0.491	0.706
February 2016	0.676	0.718
March 2016	0.776	0.731
April 2016	0.823	0.746
May 2016	0.751	0.728
June 2016	0.799	0.706
July 2016	0.527	0.695
August 2016	0.670	0.680
September 2016	0.743	0.681
October 2016	0.656	0.672
November 2016	0.465	0.662
December 2016	0.260	0.636
January 2017	0.990	0.678
February 2017	0.651	0.676
March 2017	0.574	0.659
April 2017	0.809	0.658
May 2017	0.571	0.643
June 2017	0.913	0.652
July 2017	0.613	0.660
August 2017	0.571	0.651
September 2017	0.637	0.643
October 2017	0.310	0.614
November 2017	0.283	0.599
December 2017	0.243	0.597
January 2018	0.308	0.540
February 2018	0.304	0.511
March 2018	0.512	0.506
April 2018	0.527	0.483
May 2018	0.458	0.473
June 2018	0.475	0.437
July 2018	0.449	0.423
August 2018	0.597	0.425
September 2018	0.557	0.419
October 2018	0.413	0.427
November 2018	0.531	0.448
December 2018	0.393	0.460
January 2019	0.689	0.492
February 2019	0.784	0.532
March 2019	0.852	0.560
April 2019	0.668	0.572
May 2019	0.668	0.590
June 2019	0.759	0.613
July 2019	0.920	0.653
August 2019	1.024	0.688
September 2019	0.899	0.717
October 2019	0.959	0.762
November 2019	0.977	0.799
December 2019	0.639	0.820
January 2020	0.665	0.818
February 2020	0.707	0.811
March 2020	0.666	0.796
April 2020	0.442	0.777
May 2020	0.548	0.767
June 2020	0.559	0.750

Month Year	Pumpage (Mgd)	12MAV (Mgd)
July 2020	0.552	0.720
August 2020	0.564	0.681
September 2020	0.573	0.654
October 2020	0.523	0.618
November 2020	0.588	0.586
December 2020	0.518	0.576
January 2021	0.476	0.560
February 2021	0.581	0.549
March 2021	0.484	0.534
April 2021	0.510	0.540
May 2021	0.554	0.540
June 2021	0.553	0.540
July 2021	0.503	0.536
August 2021	0.564	0.536
September 2021	0.596	0.538
October 2021	0.660	0.549
November 2021	0.698	0.558
December 2021	0.454	0.553
January 2022	0.480	0.553
February 2022	0.598	0.555
March 2022	0.567	0.562
April 2022	0.580	0.567
May 2022	0.715	0.581
June 2022	0.827	0.604
July 2022	0.776	0.626
August 2022	0.773	0.644
September 2022	0.801	0.661
October 2022	0.550	0.652
November 2022	0.486	0.634
December 2022	0.451	0.634
January 2023	0.959	0.674
February 2023	1.055	0.712
March 2023	0.654	0.719
April 2023	0.814	0.738
May 2023	0.893	0.753
June 2023	0.941	0.763
July 2023	0.953	0.777
August 2023	0.985	0.795
September 2023	0.899	0.803
October 2023	0.828	0.826
November 2023	0.625	0.838
December 2023	0.485	0.841
January 2024	0.308	0.787
February 2024	0.832	0.768
March 2024	1.025	0.799
April 2024	1.005	0.815
May 2024	0.849	0.811
June 2024	0.913	0.809
July 2024	1.140	0.824
August 2024	0.902	0.817
September 2024	1.006	0.826
October 2024	0.864	0.829
November 2024	0.801	0.844
December 2024		
January 2025		

APPENDIX M-1

WATER RESOURCE ASSESSMENT (TOM NANCE)

Water Resource Assessment for the **Makena Mauka Project**

Prepared for:

Mākena Beach & Golf Resort
5415 Mākena Alanui Drive
Wailea-Mākena, Hawaii 96753

Prepared by:

Tom Nance Water Resource Engineering
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November 2025

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Introduction

Mākena Mauka Project is a low-density master-planned residential community that will offer market rate housing together with residential workforce housing, with a mixture of rural and single-family lots and multi-family residential units, within an area that has largely been planned for such uses for decades. The Project will incorporate the existing 18-hole Mākena North Golf Course and the 18-hole Mākena South Golf Course (to be renovated as part of the land plan), together with a community gathering place, hiking trails, programs to support connectivity, walking, bicycling, and golf cart paths, beach parking for the public, areas reserved for conservation/open space, and areas reserved for public beach access. The Applicant's current vision for the Mākena Mauka Project land plan includes 652 housing units, including 109 onsite residential workforce housing units, and approximately 135,000 sf of operational support buildings, which include golf maintenance, staff offices, restaurants, back of house, golf operations and other uses; within the approximately 1,043.71-acre total Project area which includes approximately 473 acres of parcels proposed for residential development. Figure 1 shows the location of the Mākena Mauka Project and its various land uses.

Mākena Mauka Project

Table 1 summarizes the proposed residential uses within the Mākena Mauka Project, which include 195 single-family units and 457 multi-family units. Within the 195 single-family units will be 15 workforce housing units and within the 457 multi-family units will be 94 workforce housing units. All of the workforce housing will be supplied by Maui Department of Water Supply (MDWS). Also noted within Table 1 is the adjacent U1 Mākena Ranch Agricultural Subdivision which includes 72 single-family units that will be utilizing the privately owned and operated water system. There are other relatively minor water uses listed in Table 2

Mākena Ranch Agricultural Subdivision

This Project consists of 36 lots and it will be supplied by the same wells as for the Mākena Mauka Project. In calculating its required water supply, it is assumed that a second residence would ultimately be constructed on all 36 Lots. It is also assumed that landscape irrigation would be limited to one acre per lot. Its water system, using reverse osmosis (RO) filtration to produce the potable supply and untreated well water for irrigation has been designed and is currently under construction (Figure 2). The two wells identified as ATC Mākena 3 Well (State No. 3925-002) known as ATC-3 and ATC Mākena 7 Well (State No. 3925-003) known as ATC-7 would provide the supply. Each well was pump tested at a little over 350 GPM (Figures 3 and 4) and produced stable chlorides of 260 and 368 MG/L, respectively. Their permanent pumps will be 350 GPM. A third well, identified as ATC-8 (State No. 3925-004) has also been constructed and pump tested. Its yield is equivalent to the ATC-3 and ATC-7 Wells (Figure 5).

The three wells identified above will be the sources of supply for the Mākena Mauka Project and the Mākena Ranch Agricultural Subdivision. To quantify their combined safe yield, it is assumed that one well would be down and the two other two wells with 350 GPM pumps would provide the safe yield.

Required Water Supply

Table 2 presents the calculation of the required supply for both Projects. Use rates for the calculations are greater than MDWS standards. As stated previously, the 15 single-family and 94 multi-

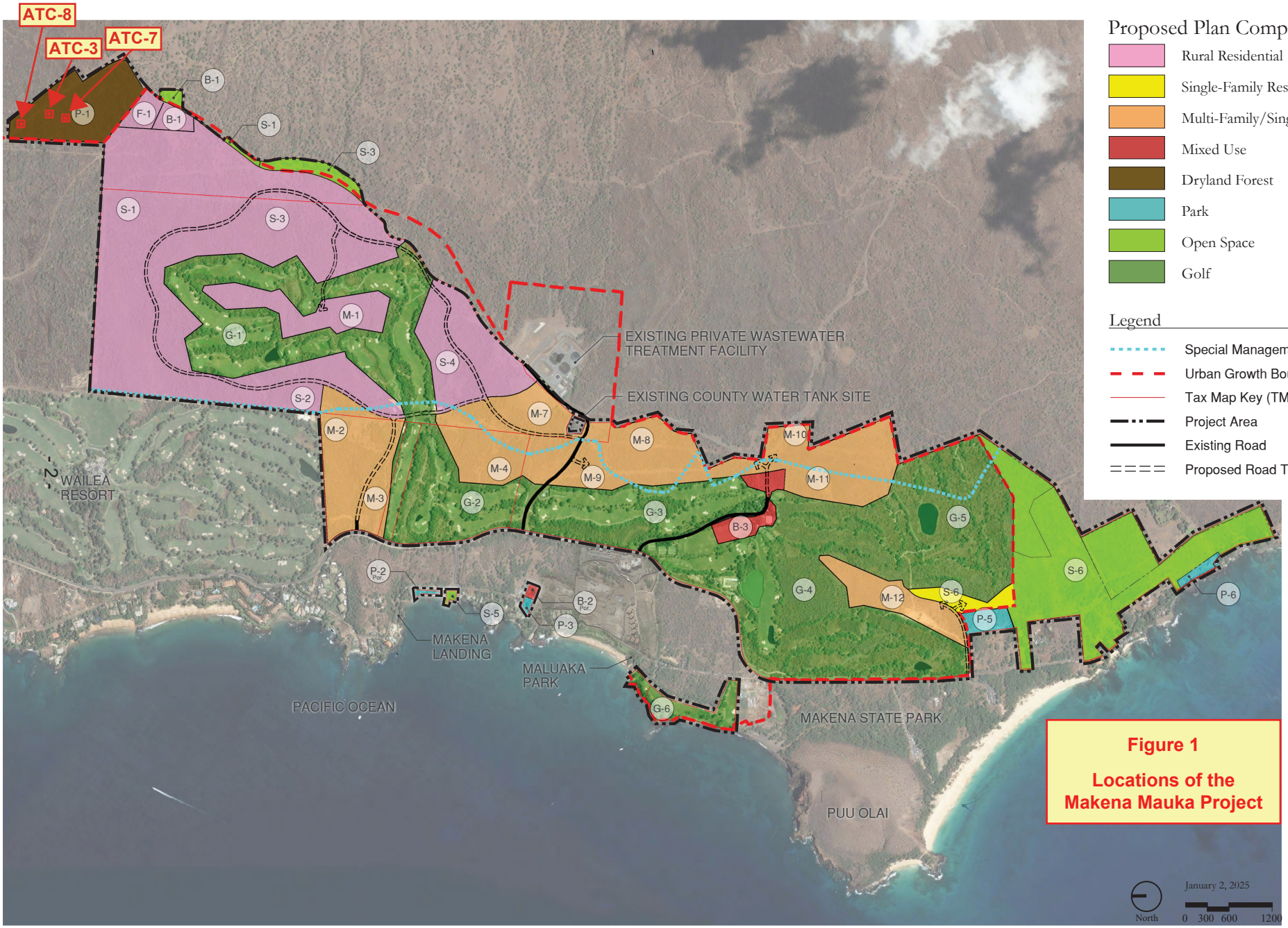

Figure 1

Locations of the Makena Mauka Project

Draft EIS Land Plan

Makena Mauka

MĀKENA GOLF & BEACH CLUB

Discovery LAND COMPANY

VITA PLANNING | LANDSCAPE ARCHITECTURE | ARCHITECTURE

Table 1

Makena Future Lands Development Preliminary Estimate of Single Family and Multi-Family Residential Units

March 10, 2025

Parcel	Proposed Residential			Work Force Housing			TOTAL		
	Single Family	Multi Family	Subtotal	Single Family	Multi Family	Subtotal	Single Family	Multi Family	Total
B-1	2	0	2	0	0	0	2	0	2
F-1	2	0	2	0	0	0	2	0	2
B-3	0	42	42	0	0	0	0	42	42
M-1	15	0	15	0	0	0	15	0	15
M-2	2	6	8	15	50	65	17	56	73
M-3	0	0	0	0	44	44	0	44	44
M-4	6	30	36	0	0	0	6	30	36
M-7	3	78	81	0	0	0	3	78	81
M-8	0	30	30	0	0	0	0	30	30
M-9	11	30	41	0	0	0	11	30	41
M-10	0	51	51	0	0	0	0	51	51
M-11	0	0	0	0	0	0	0	0	0
M-12	0	96	96	0	0	0	0	96	96
S-1	25	0	25	0	0	0	25	0	25
S-2	6	0	6	0	0	0	6	0	6
S-3	71	0	71	0	0	0	71	0	71
S-4	28	0	28	0	0	0	28	0	28
S-6	9	0	9	0	0	0	9	0	9
Totals	**180**	**363**	**543**	**15**	**94**	**109**	**195**	**457**	**652**

Table 2

Required Potable and Irrigation Supply
Supplied by ATC-3, ATC-7 and ATC-8

Required Supply for the Mākena Mauka Project
(Not including the Workforce Housing in the M-2 and M-3 Lots,
the North Golf Course and the South Golf Course)

Use	No. of Units	Potable GPD/Unit	Irrigation GPD/Unit	Potable GPD	Irrigation GPD
Single Family	180	300	500	54,000	90,000
Multi-Family	363	300	300	108,900	108,900
Golf Course Amenities Bldgs.	- -	- -	- -	42,900	31,400
Other Water Use				19,000	
Park	6.7 (Acres)	- -	1,700/Acre	- -	11,390
			Total	**224,800**	**241,690**

Required Supply for the Mākena Ranch Agricultural Subdivision

Use	No. of Units	Potable GPD/Unit	Irrigation GPD/Unit	Potable GPD	Irrigation GPD
Main Residences	36	1,000	4,000	36,000	144,000
Accessory Dwelling Unit (ADU)	36	600	600	21,600	21,600
Cattle Troughs	- -	15,000	- -	15,000	- -
			Total	**72,600**	**165,600**

Total Required Supply
(Not including the Workforce Housing in the M-2 and M-3 Lots,
the North Golf Course and the South Golf Course)

Item	RO Treated Potable (GPD)	Irrigation by Untreated Well Water (GPD)
Average Demand	297,400	407,290
Maximum Demand (1.5x)	446,100	610,935
Well Supply for RO Treatment (with 65% RO Recovery)	686,308	610,935

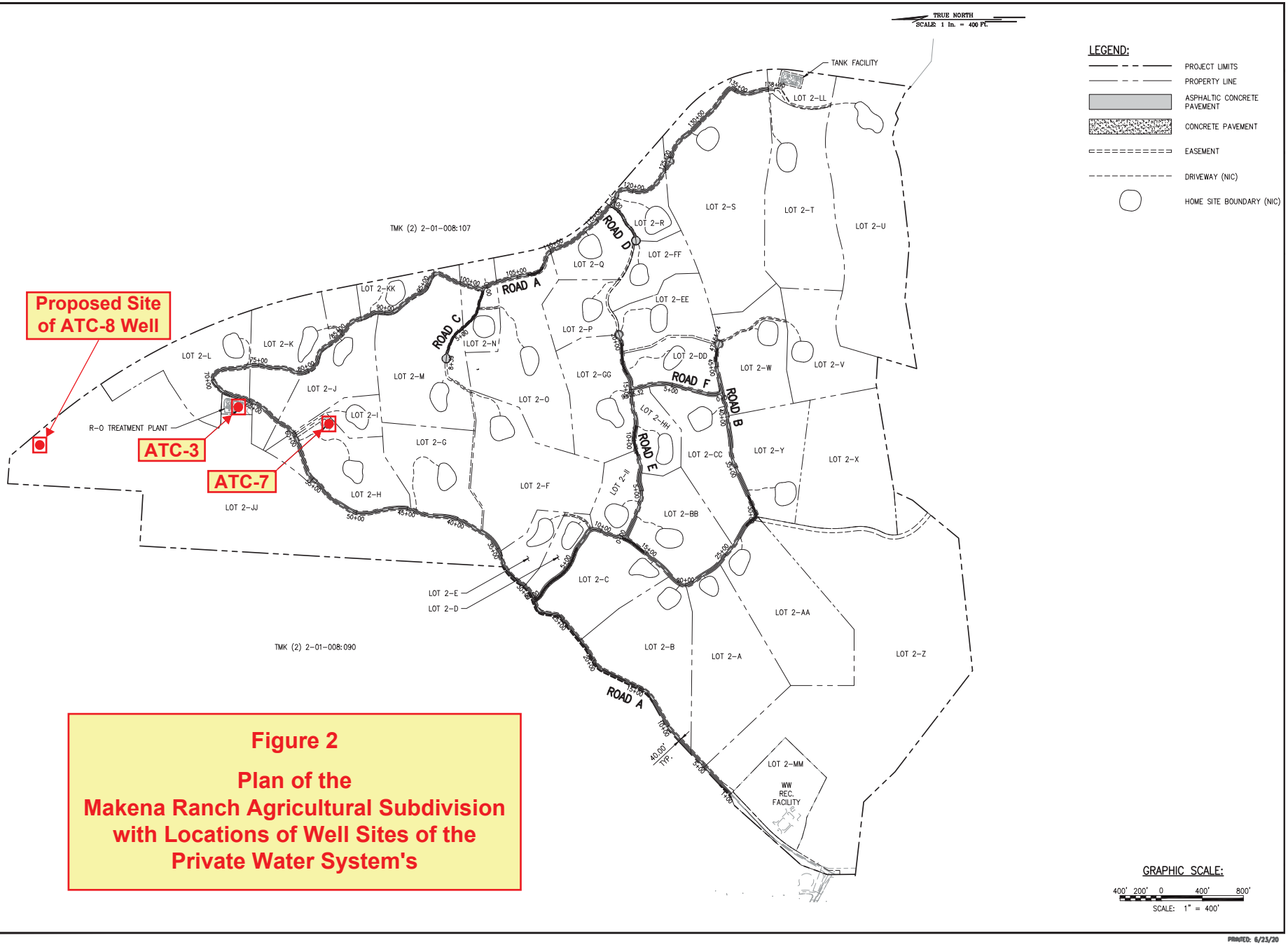

Figure 2

Plan of the Makena Ranch Agricultural Subdivision with Locations of Well Sites of the Private Water System's

Figure 3
Pumped Water Specific Conductance Measured Onsite During the
48-Hour Constant Rate Pump Test of the ATC-3 Well on July 14 to 16, 2020

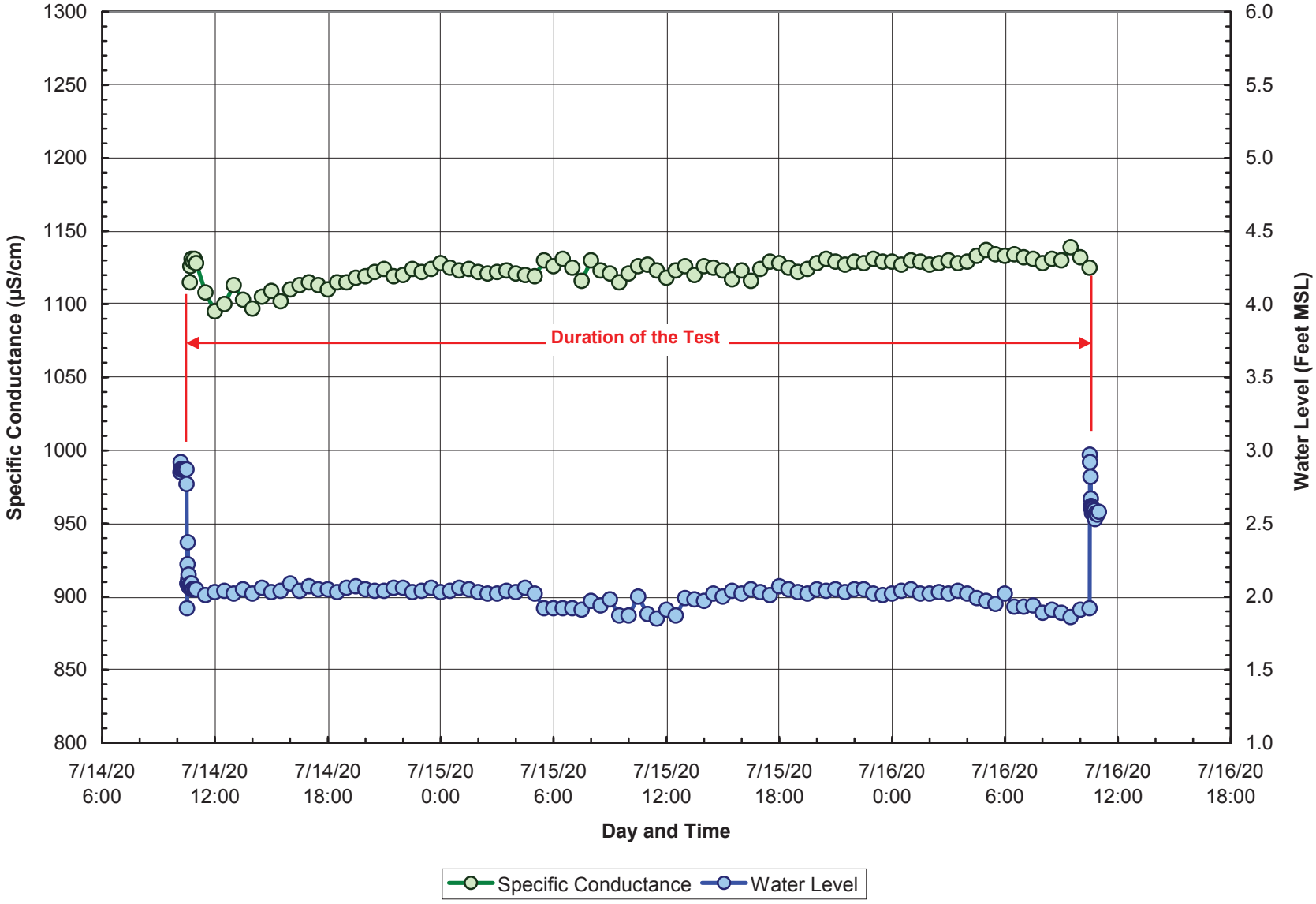

Figure 4
Measured Pumped Water Specific Conductance During the
48-Hour Constant Rate Pump Test at an Average of 366 GPM

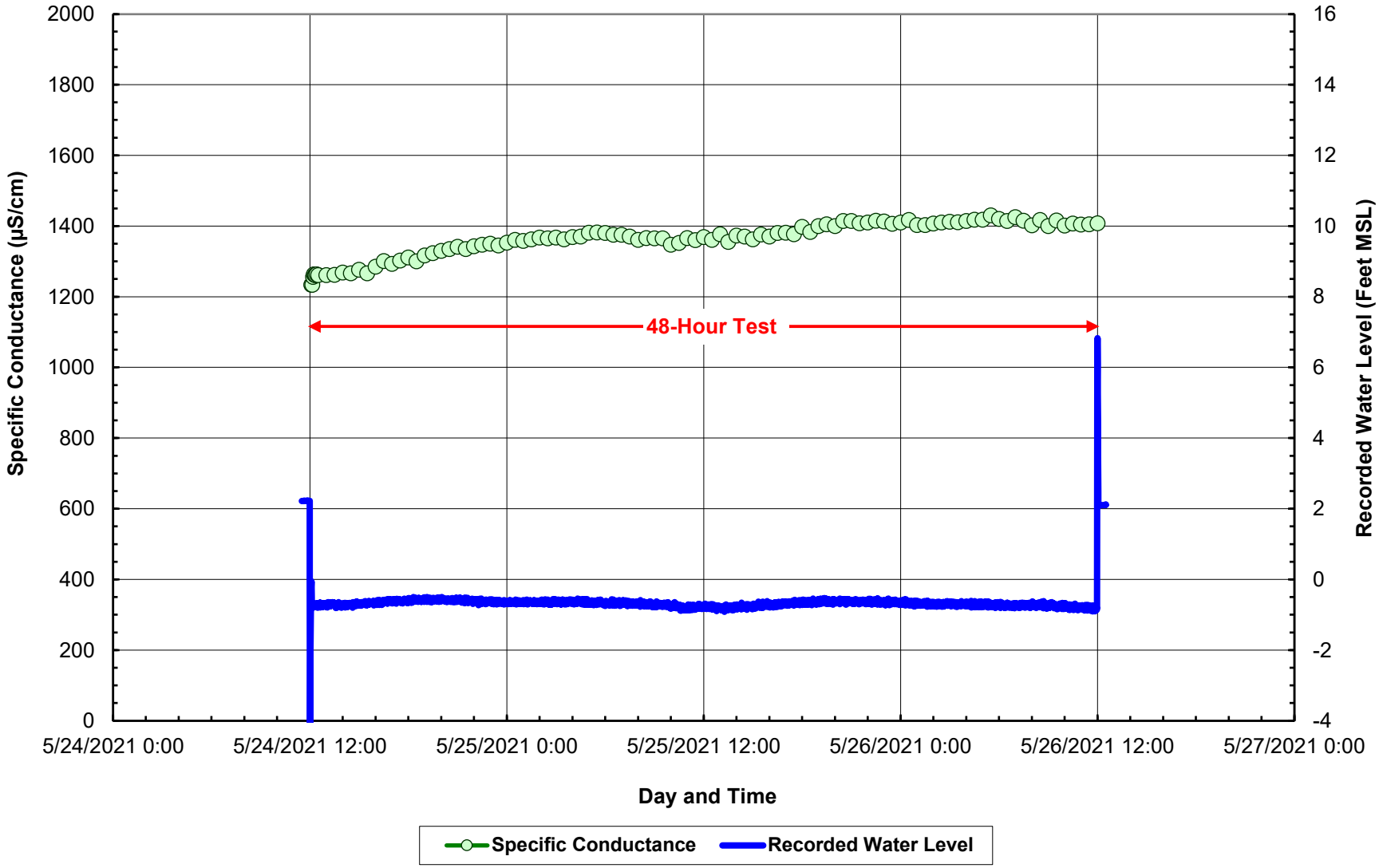

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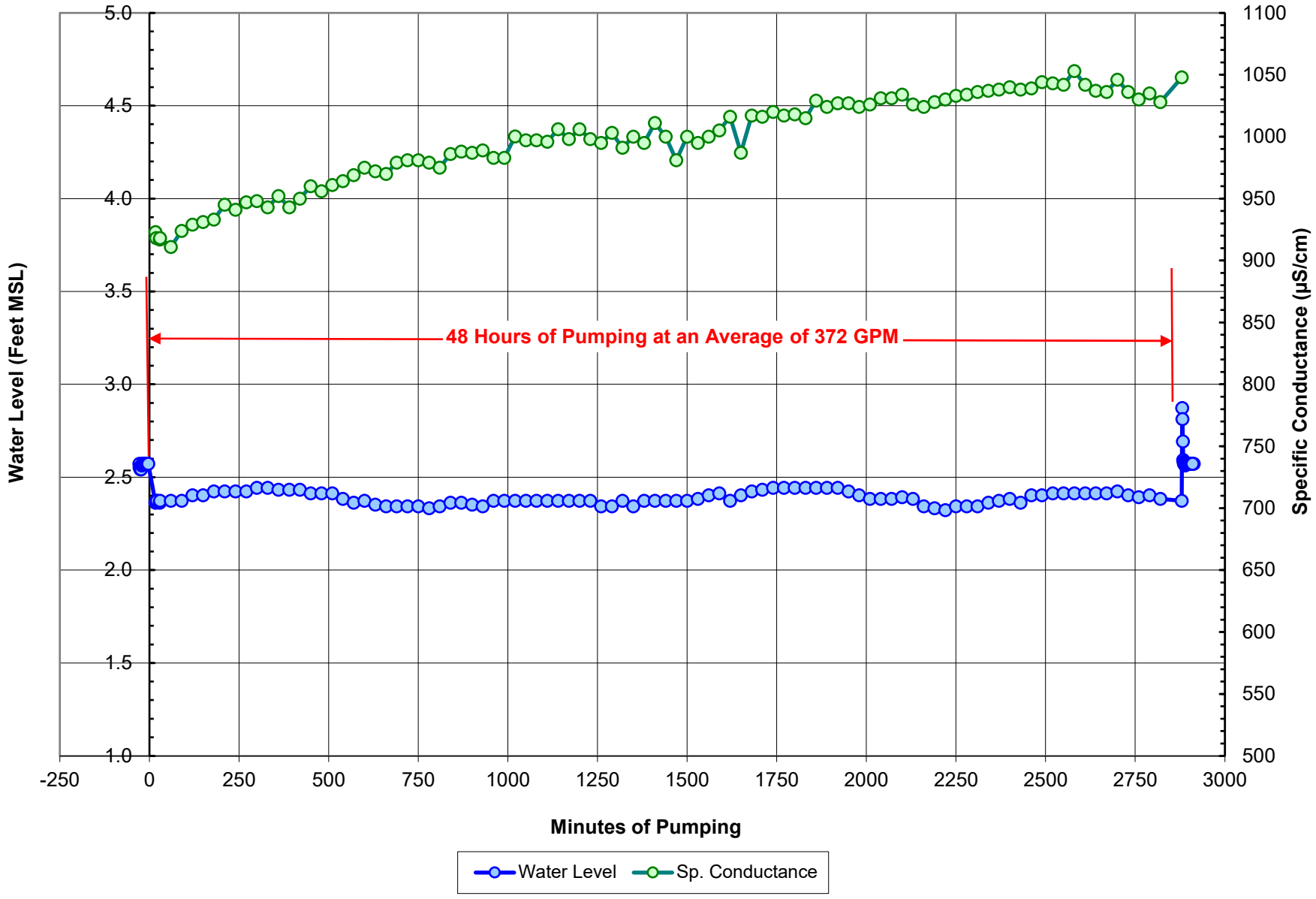
Figure 5
Water Level and Pumped Water Specific Conductance During the Constant Rate Test of the ATC-8 Well



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family workforce housing units in the M-2 and M-3 lots of the Mākena Mauka Project will be supplied by MDWS. The required maximum day potable supply for both Projects, excluding the workforce housing and assuming a 65 percent recovery rate in the RO treatment process amounts to 686,308 GPD, equivalent to 477 GPM if pumped 24 hours a day. This is less than the safe yield from two of the three 350 GPM supply wells. In addition to the required new supply tabulated in Table 2, the Project will include approximately 65 additional acres of South Golf Course irrigated area in addition to the existing 100 acres of the operational North Golf Course.

At the Project's full build out and occupancy, wastewater generation would be treated to R-1 quality and made available for irrigation use. Also at full build out, the RO treatment process is expected to produce 182,000 GPD of concentrate. On a long-term basis, and in line with the sustainability objectives for the project, these two sources of supply would be blended with brackish well water and used for golf course irrigation. This use of blended R-1 and RO concentrate will reduce use of brackish well water for golf course irrigation needs.

On an interim basis, the additional golf course irrigation would be provided by brackish well water from the 12 existing irrigation wells at Makena. A number of these are not currently operational and would need to be made operational. At full capacity, these 12 wells provide 4.97 million gpd of potential supply, which is more than enough to cover the additional demand from the South Golf Course [in decades past, the wells irrigated two 18-hole golf courses.]

Notably, at full build out there would be a substantial volume of RO concentrate (about 182,000 GPD) for reuse or disposal. The State of Hawaii Department of Health's (DOH) current position is that the RO concentrate cannot be reused for irrigation. The reality is that it is likely to be too saline for irrigation in the two Projects but may be appropriate for golf course irrigation. If DOH's position on the RO reuse is not changed, then a method of disposal would be required. A disposal well or pit would ultimately need to be installed.

Summary Conclusions

The three, slightly brackish Wells (ATC-3, ATC-7, and ATC-8), with RO treatment for potable supply, will have sufficient capacity for the Mākena Mauka Project and the Mākena Ranch Agricultural Subdivision for a dual water system. Irrigation would be by untreated well water and may require a modest supplement from an existing golf course irrigation well. The three ATC Wells do not have sufficient capacity for a single potable and irrigation water system due to the requirement to RO treat the well water for irrigation.

The RO treatment will produce a concentrate for possible reuse or disposal. The State Department of Health's current position does not allow reuse of the concentrate. If that position is not changed, the concentrate would have to be disposed of in a disposal well or pit.

APPENDIX

N

WATER CONSERVATION PLAN (2009)

Water Conservation Plan

MAKENA RESORT

Prepared for:

Makena Resort

July 2009

MUNEKIYO HIRAGA, INC.

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I. INTRODUCTION

I. INTRODUCTION

A. PROJECT BACKGROUND

The Kihei-Makena region contains an array of land uses, ranging from rural residential communities to commercial centers and master-planned resorts, each interlaced with public parks and other recreational facilities. The area specific to Makena is comprised of open mountainsides, a string of beaches, high-end residences, a world-class resort, and scenic vistas. These characteristics have established this region of Maui as a highly desirable vacation destination.

As this region of South Maui flourished, a resort community master plan better known as Makena Resort Master Plan was developed for approximately 1,860 acres. See **Figure 1**. In November 1998, a request for a Change in Zoning (CIZ) was filed with the County of Maui, Department of Planning. The CIZ request sought to reclassify approximately 603 acres of the 1,860 acres of land encompassed by Makena Resort. In 2007, the lands owned by Makena Resort Corp. were purchased by various entities and affiliated companies, and referred to hereinafter as "Makena Resort". Makena Resort pursued the County entitlements, and after careful review and deliberation by the Maui County Council, the CIZ was approved in December 2008, and was signed into law January 7, 2009. The CIZ approval was subject to a list of 44 conditions pertaining to cultural resources, environmental protection, recreation, affordable housing, and traffic, among others.

1. CIZ Conditions

One of the 44 conditions, Condition No. 27, required a water conservation plan for Keaka LLC, Makena Golf, LLC, Makena Hotel, LLC, Makena Resort Services LLC, and Makena MF-2&3, LLC, its successors and permitted assigns, referred to hereinafter as "Makena Resort". The condition reads as follows:

Condition No. 27:

> *The developer shall provide a water conservation plan for the Makena Resort Area, approved by the Department of Water Supply, prior to the issuance of any SMA permits. For each project, the developer shall construct a dual waterline system to accommodate*

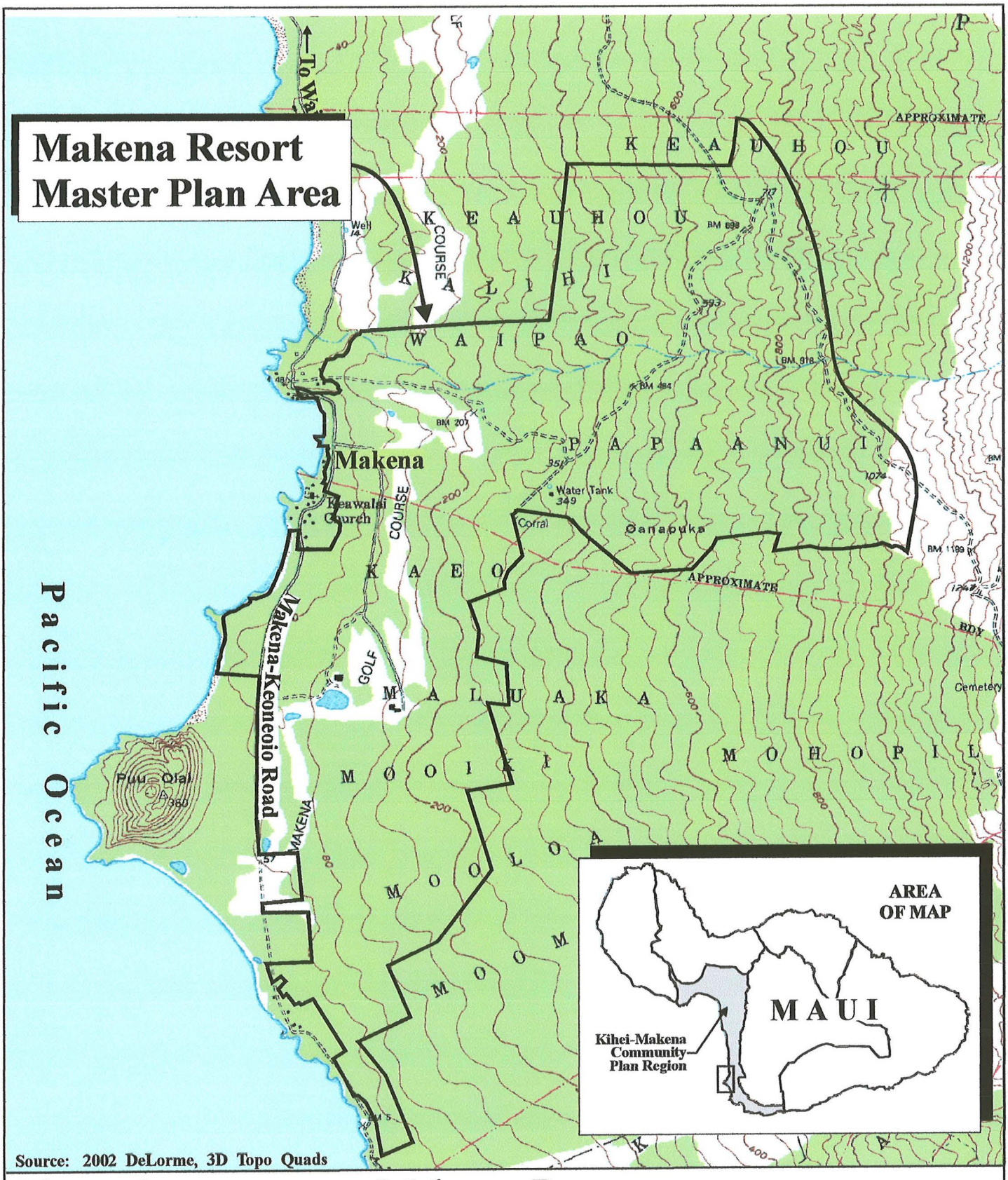


Figure 1

Makena Resort
Water Conservation Plan
Regional Location Map

NOT TO SCALE

Prepared for: Makena Resort

MUNEKIYO & HIRAGA, INC.

Dowling\MakenaConditions\WaterPlan\REGIONAL

non-potable water for landscaping and irrigation purposes prior to the issuance of any building permits.

B. WATER CONSERVATION PLANNING OBJECTIVES

Pursuant to Condition No. 27 set forth by the CIZ approval, the Water Conservation Plan (WCP) seeks to manage water resources at Makena Resort. The primary objective of this WCP is to encourage water conservation practices through planned improvements and conservation measures that reduce water use. The WCP's goal is to reduce indoor demand for water through water-efficient fixtures and fittings; and reduce landscaping irrigation through the use of non-potable water sources. This WCP will be submitted for review and approval by the County of Maui, Department of Water Supply.

Water is a vital resource and the future residences and businesses of Makena Resort will employ high efficiency water systems to meet the objectives of the WCP through reduction of water consumption throughout Makena Resort.

II. COMMUNITY CONTEXT

II. COMMUNITY CONTEXT

While the Makena Resort Master Plan encompasses resort residences, a world class hotel, and resort-oriented shopping and recreational facilities, the surrounding region contains a varied array of land uses as well. In this context, South Maui attracts a significant number of visitors while accommodating a sizeable population of local residents.

A. SURROUNDING LAND USES

1. Residential

According to the 2006 Socio-Economic Forecast for the County of Maui, the 2005 resident population of the Kihei-Makena region was estimated at 25,609 people, a 67 percent increase from the 1990 population of 15,365 people (Department of Planning, 2006). In concert with this documented population growth, the housing stock of the Kihei-Makena region has also expanded in recent years. Together, the towns of South Maui, namely Kihei, Wailea, and Makena, provide a spectrum of residential neighborhoods, ranging from affordable, single- and multi-family developments to upscale resort-residential and gated communities. Whereas housing in Kihei Town ranges from affordable to market-priced, subdivisions in Wailea and Makena cater to luxury housing markets.

2. Hotels and Resort

Since its early beginnings, the Kihei-Makena region has welcomed a robust visitor population. In 1990, on average, approximately 16,079 tourists stayed in the South Maui area, outnumbering the resident population. Estimates for 2005 show an increase in visitor arrivals, with approximately 19,447 tourists vacationing in the region (Department of Planning, 2006). While Kihei is characterized by a variety of apartment rentals, cottages, and beachfront condominiums, both Wailea and Makena have been developed as master planned resort communities, boasting award-winning spas and world class resorts.

3. Public Services and Facilities

In order to support the ever-growing resident and visitor communities, a number of public services and amenities have been established throughout the region.

a. Police and Fire Protection

Operating out of a substation located at the Kihei Town Center, the Kihei Patrol squad of the County of Maui Police Department covers the Kihei-Makena Community Plan region. Planning has been initiated for a new South Maui Police Station mauka of Pi`ilani Highway in the vicinity of Kanani Road. The project is currently undergoing environmental review and land entitlement amendments.

Fire prevention, protection, and suppression services for the island of Maui are provided by the County of Maui, Department of Fire and Public Safety, which has two (2) stations serving this region: the Kihei Fire Station, which serves Kihei Town, south to Kama`ole Beach Park II; and the Wailea Fire Station, which serves the remainder of South Kihei, south to Makena.

b. Medical Facilities

The only major medical facility on the island is Maui Memorial Medical Center, which is located in Wailuku, approximately 20 miles from the project area. However, a number of medical clinics and doctors' offices offering select medical services are located throughout Kihei and Wailea. These facilities include Kihei Clinic, Wailea Medical Services, Kihei Pediatric Clinic, Kihei Physicians, the Kihei-Wailea Medical Center, Maui Medical Group, and Kaiser Permanente. Meanwhile, planning and design phases of the proposed South Maui Ambulance station have commenced. With an anticipated completion date in 2011, the ambulance station is proposed to be located on Kilohana Drive, adjacent to the Wailea Fire Station.

c. Educational Facilities

The State of Hawai`i, Department of Education (DOE) operates three (3) public schools in the Kihei-Makena region. Kihei Elementary School and Kamali`i Elementary School, each covering grades Kindergarten through 5, are located approximately 2.1 miles apart, both on the makai (west) side of Pi`ilani Highway. Lokelani Intermediate School, which covers grades 6 through 8, is located adjacent to Kihei Elementary School. Of note, the DOE has initiated preliminary planning and design for a new Kihei High School.

Pursuant to site acquisition and land use entitlements, build-out of Kihei High School is anticipated in the next five (5) to ten (10) years.

The Kihei Public Charter High School, offering grades 9 through 12, is located near the northern terminus of Pi`ilani Highway, within the Kihei industrial area.

d. Recreational Facilities

The climate of the South Maui region is decidedly warm and dry, creating optimal conditions for the pursuit of outdoor activities, such as fishing, surfing, jogging, camping, snorkeling, swimming, and windsurfing. In following, the County of Maui has established a variety of public parks along the coast, including Waipu`ilani Park, Kalama Park, and Kama`ole Beach Parks I, II, and III, among others. Other recreational resources include the Kihei Community Center and Aquatic Center, and world-class golf courses and tennis facilities. Meanwhile, Makena State Park, a 165-acre coastal area which includes the popular Big Beach and Little Beach, is well-frequented by both residents and visitors alike.

4. Attractions

An array of natural features and landscapes may be observed in the South Maui region. A prominent physical landmark located within the immediate vicinity of the master plan area is Pu`u Ola`i, a volcanic cinder cone. Further to the south of Pu`u Ola`i lies the `Ahihi-Kina`u Natural Area Reserve, an area home to a number of rare and endangered native species which is maintained by the State of Hawai`i, Department of Land and Natural Resources. The bays skirting this reserve offer prime snorkeling locations, and a string of beach parks line the entire coastline. Due to their pristine condition, these scenic sites are popular attractions for both residents and visitors.

III. PROJECT OVERVIEW AND DEVELOPMENT PARAMETERS

III. PROJECT OVERVIEW AND DEVELOPMENT PARAMETERS

A. MASTER LAND USE PLAN

Encompassing approximately 1,860 acres of South Maui, the Makena Resort Master Plan includes multi-family and single-family resort residential components, a hotel site, business, retail and commercial areas; and outdoor recreational facilities such as parks and golf courses. Aside from the existing 310 guestrooms and 19 luxury units at Maui Prince Hotel, the Master Plan proposes approximately 849 units, consisting of new hotel rooms, and multi-family and single-family homes. The project area affected by Condition No. 27 is limited to the parcels which were subject to the Change in Zoning (CIZ) action; the 603 acres encompassed by the CIZ project area have approximately 414 units. **Figure 2** exhibits the Master Land Use Plan for Makena Resort.

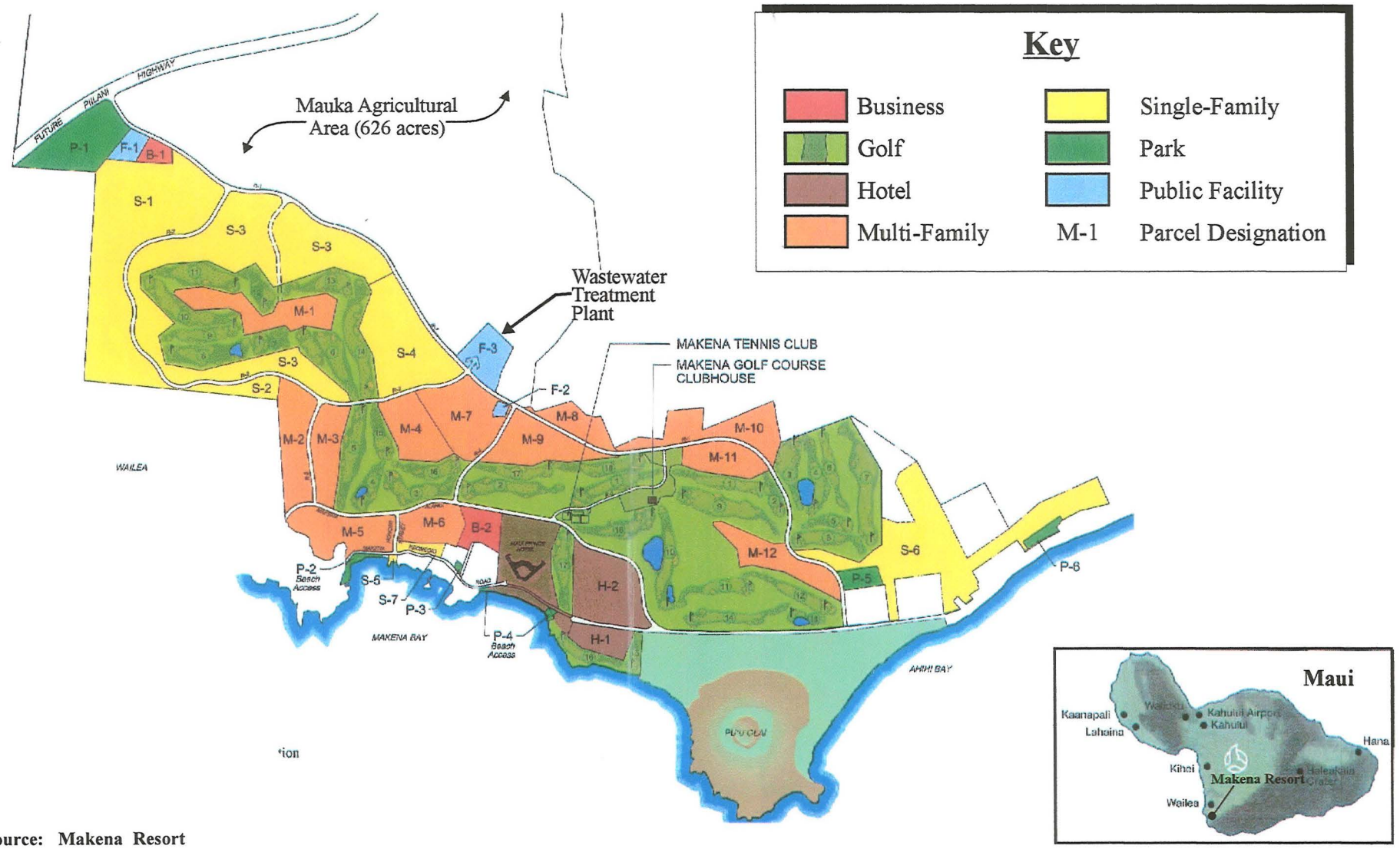
Current plans for each component of Makena Resort are described below. It is emphasized, however, that these are preliminary plans, subject to change over time.

1. Multi-Family Residential

In total, the master plan dedicates approximately 226 acres to multi-family residential developments, accommodating approximately 475 units. Distributed across the resort property in twelve (12) distinct pockets, these acreages will front stretches of the Makena North and South Golf Courses.

2. Single-Family Residential

Approximately 349 acres of land have been devoted to the development of approximately 217 single-family residential units. Similar to the multi-family lands, these 349 acres are divided amongst seven (7) parcels, distributed throughout the resort property.



Source: Makena Resort

Figure 2

Makena Resort Water Conservation Plan

Master Land Use Plan

NOT TO SCALE

Prepared for: Makena Resort

MUNEKIYO & HIRAGA, INC.

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3. Hotel

Situated makai of Makena Alanui Road, the Maui Prince Hotel includes 310 guest rooms and 19 luxury units, set atop approximately 38 acres of land fronting the shoreline. In time, however, this facility will be demolished and replaced with a smaller hotel or closed for renovation and subsequent re-opening with less hotel rooms.

4. Village Center

Near the heart of Makena Resort will be a Village Center which will provide for day-to-day needs of residents and guests. Incorporated within this area will be a general store and post office accompanied by a restaurant, cultural center, lecture theater, and other such facilities. This site will be used to support the hotel, golf, and real estate operations of the resort.

5. Parks and Golf Courses

Currently existing within the Makena Resort grounds are the Makena North and South Golf Courses and the Makena Tennis Club, which together, cover an area of approximately 431 acres. In addition to these amenities, the master plan also provides for approximately 35 acres of park lands, scattered in six (6) locations across the resort property.

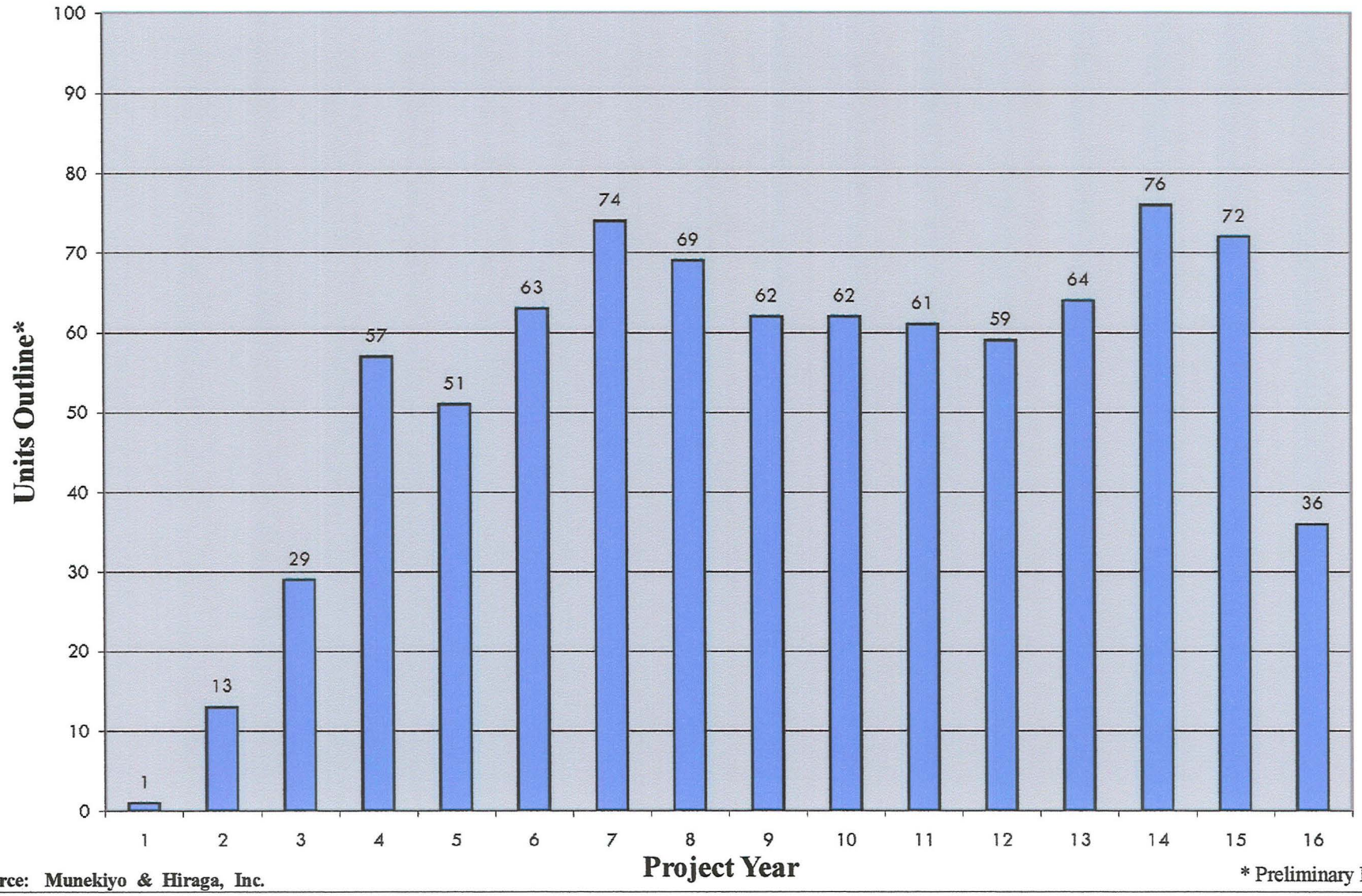
6. Mauka Agricultural Area

In addition to the multi-family and single-family neighborhoods surrounding the golf courses and *makai* landholdings, the Makena Resort Master Plan also includes an agricultural subdivision located on 626 acres of land in the *mauka* portion of Makena Resort. The 113 units planned for this area will be the last units constructed in Makena Resort.

B. DEVELOPMENT PHASING

At this time, the development of Makena Resort is programmed over a 16-year time span. In sum, the completed development will include approximately 849 resort-residential units. The developer will construct a portion of these 849 units; however, the majority will be custom-built by individual lot owners, with construction operations of the developer limited to site work and related infrastructure and utilities improvements. In effect, although unit

absorption is scheduled over the 16-year duration, construction and sitework activity conducted by the developer will only occur from Project Year 1 through Project Year 11. Construction initiated by individual lot owners will be ongoing through Project Year 16. See **Figure 3**.



Source: Munekiyo & Hiraga, Inc.

* Preliminary Estimate

Figure 3

Makena Resort Water Conservation Plan

Projections for Unit Absorption

NOT TO SCALE

Prepared for: Makena Resort

MUNEKIYO & HIRAGA, INC.

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IV. EXISTING WATER SYSTEMS

IV. EXISTING WATER SYSTEMS

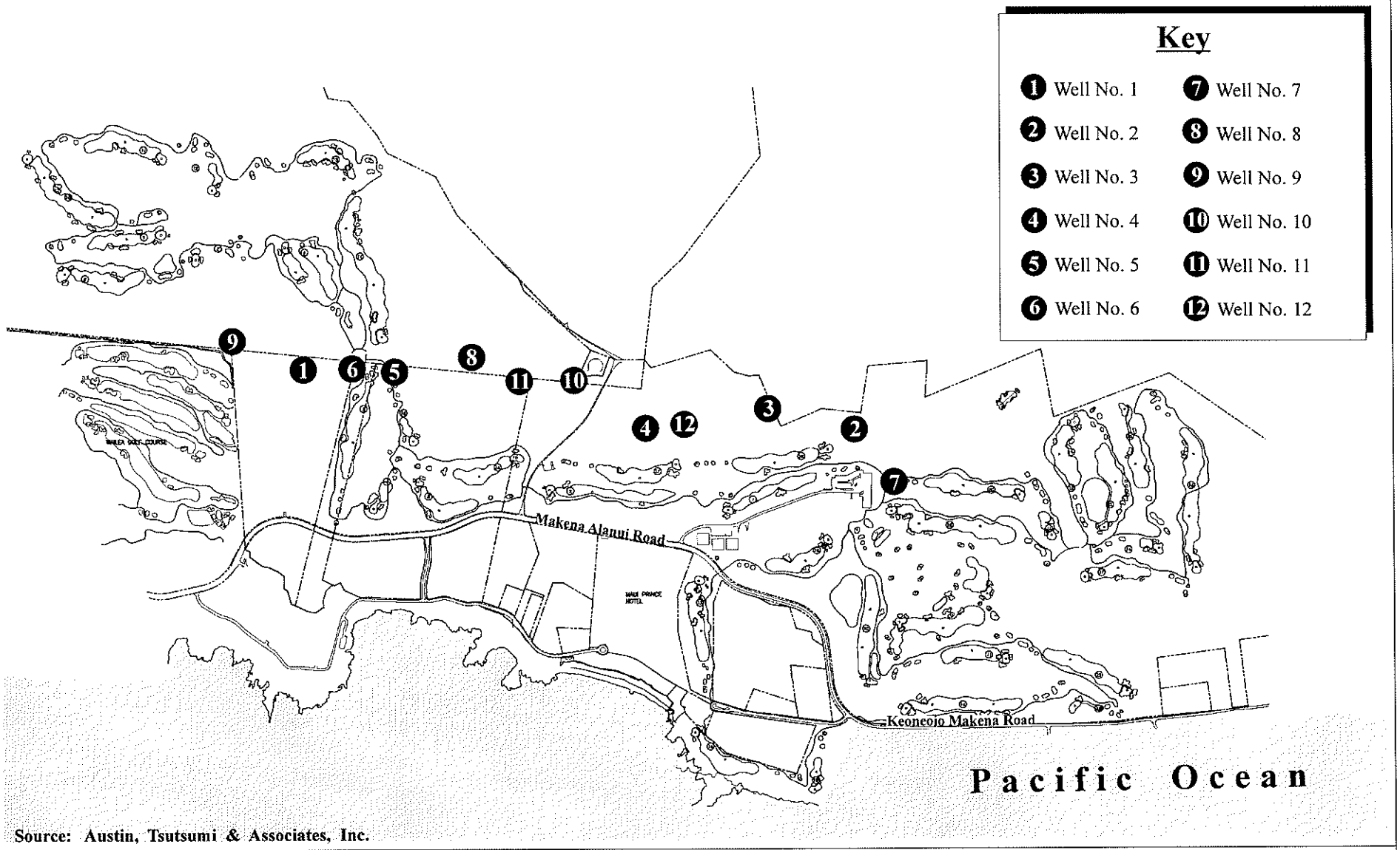
Makena Resort has three (3) existing water sources: (1) potable water from the County of Maui, Department of Water Supply; (2) non-potable water from wells; and (3) existing non-potable water from treated effluent from Makena Resort Wastewater Treatment Plant. The following is a discussion on the existing water systems at Makena Resort.

A. POTABLE WATER

The County of Maui, Department of Water Supply provides potable water service to Makena Resort. This system consists of a network of transmission and distribution lines and reservoirs. Existing 12-inch and 20-inch ductile iron waterlines are located within Makena Alanui Road and a 1.5 million gallon watertank is located approximately 265 feet above sea level. Built by Makena Resort Corp. and turned over to the County of Maui, Department of Water Supply, the water tank serves the Makena area.

B. NON-POTABLE WELLS

Makena Resort owns and operates nine (9) wells that provide approximately 2.4 million gallons per day (MGD) of non-potable water, mainly for irrigation purposes. This non-potable water provides water service for the golf courses and landscaping along Makena Alanui Road within Makena Resort. See **Figure 4** for the location of the wells. The capacities of the wells are illustrated in **Table 1**.



Source: Austin, Tsutsumi & Associates, Inc.

Figure 4 Makena Resort Water Conservation Plan

Well Locations

NOT TO SCALE

Prepared for: Makena Resort

MUNEKIYO & HIRAGA, INC.

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Table 1. Makena Non-Potable Well Capacities

Well Number	Capacity (GPD)
#1	336,000
#2	288,000
#3	288,000
#4	192,000
#5	384,000
#6	384,000
#8	192,000
#10	192,000
#11	192,000
TOTAL	**2,448,000**

C. TREATED EFFLUENT FROM WASTEWATER TREATMENT PLAN

A private wastewater treatment plant and reclamation facility is owned and operated by Makena Resort. Refer to **Figure 2** for location. The Makena Resort Wastewater Treatment Plant has a design capacity of 720,000 gallons per day (gpd). As of June 2009, the monthly average daily flow was approximately 80,700 gpd with a maximum daily flow was of 105,000 gpd. The Makena Resort Wastewater Treatment Plant provides a monthly average daily flow of approximately 76,000 gpd of treated effluent for the golf courses, common area landscaping, and construction watering.

V. DESCRIPTION OF WATER CONSERVATION MEASURES

V. DESCRIPTION OF WATER CONSERVATION MEASURES

The objective of Makena Resort Water Conservation Plan is to encourage water conservation practices and measures that reduce water use by specifically reducing indoor demand for water through water-efficient fixtures and fittings; and reduce landscaping irrigation through the use of non-potable water sources. To this end, the following conservation measures will be implemented.

A. UNIVERSAL METERING FOR IRRIGATION WATER

1. Source-Water Metering

Each entity along the irrigation water line benefits from metering. Source metering is essential for water accounting purposes to determine the quantity of water supply. Makena Resort will use metering data to accurately track water usage.

2. Service-Connection Metering

Service-connection metering is needed to inform the end-user of irrigation water use. Meters will be read on a fixed interval once a month. Metering will provide accurate comparisons and analysis. For example, it helps to detect leaks when there is a spike in usage. It also allows for future rate-demand pricing methods where peak usage times are charged a higher rate.

3. Public-Use Water Metering

All irrigation water provided free of charge for public, such as fire hydrant maintenance, use will be metered and read at regular intervals. This will allow Makena Resort to accurately account for water usage for the entire system.

4. Meter Maintenance

Inaccurate meter readings will give misleading information on irrigation water usage, make leak detection difficult, and result in non-potable water waste. Irrigation water meters can be damaged and deteriorate with age, thus all meters should be tested for accuracy and recalibrated on a regular basis. During this process, the Makena Resort will also determine if the meter is appropriately sized. Meters that are too large for an end-user's usage will tend to under-register water usage.

B. IRRIGATION WATER ACCOUNTING AND LOSS CONTROL

Once the irrigation water system is universally metered, Makena Resort's irrigation water accounting systems will track water throughout the system. The system will identify areas that may need attention, particularly large volumes of non-accounted water which includes water for utility purposes (i.e. construction water trucks) and for certain public uses (fire hydrant maintenance). Non-accounted water also includes unauthorized uses, including losses from accounting errors, malfunctioning distribution system controls, thefts, or leaks. This measure will provide valuable data to manage irrigation water properly.

C. WATER AUDITS

Makena Resort currently audits the resort's domestic water use every two (2) months by detailed review of its water bill from the County of Maui, Department of Water Supply. Any spike in water usage is investigated to ensure that water is being used conservatively and leaks are immediately repaired.

In addition, Makena Resort will complete random water audits of its users of irrigation water to ensure minimal water waste.

D. INFORMATION AND EDUCATION

Information and education are critical to the success of any water conservation program. Information and education measures can directly produce water savings when end-users change their water-use habits. These types of water savings are difficult to estimate, however, these measures can enhance the effectiveness of other conservation measures. In

general, end-users that are informed and involved are more likely to support the water conservation planning goals.

Makena Resort will provide irrigation water bills that are both understandable and informative. End-users will be able to identify volume of usage, corresponding rates and quickly identify spikes in usage in comparison to other months. Beyond the basic information, Makena Resort will provide tips on water conservation that help end-users make informed decisions on water use.

Makena Resort will initiate a water conservation advisory committee that will involve the Makena Resort community in the conservation process. The committee's objective will be to provide feedback and help implement its water conservation plan. The committee will consist of a Makena Resort representative, Homeowners Association Presidents, and Building Managers (i.e. Hotel Director of Engineering). The committee will meet quarterly to discuss, among other topics, implementation of water conservation measures.

E. WATER USE STANDARDS

1. Indoor Water Use

The Makena Resort's Design Guidelines will impose standards on new homes with regard to water conserving plumbing fixtures and irrigation equipment. These include flow restrictors at all shower heads and faucets, low-flow toilets and low-flow irrigation heads. Plumbing fixtures specification shall be included in the construction drawings. For example, M-2 and M-3 Design Guidelines for the proposed project require that high-efficiency fixtures and fittings must meet the following requirements:

- The average flow rate of all lavatory faucets must be less than or equal to 2.0 gpm.
- The average flow rate of all shower heads must be less than or equal to 2.0 gpm.
- The average flow rate of all toilets must be less than or equal to 1.3 gallons per flush or toilets must be dual-flush.

In addition, Makena Resort Design Guidelines will impose Energy Star® standards on new homes for dishwashers and clothes washers. Energy Star® qualified

appliances incorporate advanced technologies that use 10 to 50 percent less water than standard models.

Furthermore, future residences will be Leadership in Energy and Environmental Design (LEED) Certified under the U.S. Green Building Council's LEED for Homes Green Building Rating System as required by Makena Resort Design Guidelines. LEED is a nationally recognized standard for design and construction of high-performance green buildings. LEED includes a section for indoor water use that minimizes indoor demand for water through water-efficient fixtures and fittings.

2. Landscaping Water Use

Makena Resort will provide non-potable water from their existing non-potable water wells and treated effluent from the Makena Resort Wastewater Treatment Facility. Each project will consist of a dual waterline system that will provide non-potable water for common area landscaping irrigation use. In addition, each single-family residence will have a dual-line system that users can utilize to reduce potable water use through non-potable water sources.

Additionally, the Makena Resort's Design Guidelines will provide a Plant Palette that requires both water conserving plants and sense of place. The majority of the Plant Palette lists Moderate to High drought tolerant plants. The Design Guidelines also encourage carefully designed irrigation systems that could include drip irrigation, high-efficiency nozzles, and moisture sensors to reduce common area landscape irrigation needs.

VI. SUMMARY

VI. SUMMARY

In summary, Makena Resort's WCP outlines a list of water conservation measures that include water accountability, education, audits and design standards that will reduce indoor demand for water through water-efficient fixtures and fittings. Additionally, the resort will reduce potable water demand for landscaping irrigation through the use of non-potable water sources for common areas, as well as individual single-family residences.

VII. REFERENCES

VII. REFERENCES

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APPENDIX O

FLORA AND FAUNA REPORT

Flora and Fauna Survey

Biological Survey and General Restoration Recommendations for Mākena Mauka Lands

Rick Barboza
Hui Kū Maoli Ola
- March 26, 2025



Prepared for AREG AC Makena Propco, LLC



Wiliwili



Puakala



Maiapilo

Flora and Fauna Surveys Report Proposed Makena Ma Uka Project

Date: March 26, 2025
Survey Period: September - December 2024
Survey Area: Makena, Maui (Approximately 1,043.71 acres surveyed)
Surveyor: Rick Barboza

Executive Summary:

This report details the findings of a biological survey conducted at the project site of Mākena Mauka between September and December 2024. Survey results revealed severely impacted native plant communities and a landscape dominated by invasive species, with native flora struggling to survive due to pressure from axis deer, competition from non-native plants, and a high fire risk. A total of 170 different plant species were observed, only 26 of them native; Three highly destructive alien mammal species and one endemic bat; 22 bird species (4 of them native, 2 annual visitors); as well as 20 alien insect species and two native species.

The proposed project area itself, Mākena Mauka, is a low-density master-planned residential community that will offer market rate housing together with residential workforce housing, with a mixture of rural and single-family lots and multi-family residential units, within an area that has largely been planned for such uses for decades. The project will incorporate the existing 18-hole Mākena North Golf Course and the 18-hole Mākena South Golf Course (to be renovated as part of the land plan), together with a community gathering place, hiking trails, programs to support connectivity, walking, bicycling, and golf cart paths, beach parking for the public, areas reserved for conservation/open space, and areas reserved for public beach access.

The intended use for the Mākena Mauka land plan is for 652 housing units, including 109 onsite residential workforce housing units, within the approximately 1,043.71-acre total project area which includes approximately 473 acres of parcels proposed for residential development.

A project of this scale can greatly impact what few native species remain in a positive way by creating a unique opportunity to rebuild a functional and interactive dry forest ecosystem or in a negative way if managed poorly. This report outlines the survey findings, identifies key threats, and proposes a

comprehensive restoration strategy. The restoration of this area, even prior to development, will significantly improve its ecological function and aesthetic value.



Typical alien grass understory around site



Mix of alien kiawe and koa haole trees, lion's ear and buffel grass



'Ilie'e struggling in severe drought and alien weed competition

1. Introduction:

Lowland dry forests in Hawai'i were once biologically diverse hotspots. This survey aimed to assess the current condition of the native plant communities in the proposed project areas of Mākena Mauka, Maui; document the presence and health of native species, identify the primary threats to their survival, and utilize this information to develop a workable restoration plan with ultimate goal of enhancing the population sizes of existing native species as well as reestablishing other native species from neighboring populations to compliment the Sustainability, Conservation and overall Landscape Management Plans of this project.

2. Regulatory Environment:

This chapter describes the laws and regulations applicable to terrestrial flora and fauna in the context of the project.

2.1 ENDANGERED SPECIES ACT

The federal Endangered Species Act of 1973, as amended (ESA), is regulated by the U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration National Marine Fisheries Service and protects wildlife and plant species that have been listed as threatened or endangered. It is designed to conserve the ecosystem on which species depend. Candidate species, i.e., species that may be listed in the near future, are not afforded protection under the ESA until they are formally listed as endangered or threatened. Section 9 of the ESA and rules promulgated under Section 4(d) of the ESA prohibit the unauthorized take of any endangered or threatened species of wildlife listed under the ESA. Under the ESA, the term "take" means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect species listed as endangered or threatened, or to attempt to engage in any such

conduct. (ESA16 US Code 1532(19) At the time of this report, defined in regulations, the term "harm" means "an act that actually kills or injures wildlife; it may include significant habitat modification or degradation, which actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering" (50 Code of Federal Regulations [CFR] 17.3). The rules define "harass" to mean "an intentional or negligent act or omission that creates the likelihood of injury to wildlife by annoying it to such an extent, as to significantly disrupt normal behavior patterns, which include, but are not limited to, breeding, feeding,
or sheltering" (50 CFR 17.3). However there is a proposal by the US Fish and Wildlife Service and the National Marine Fisheries Service to rescind the regulatory definition of "harm" in the Endangered Species Act regulations. [Published Document:2025-06746 (90FR16102)] This proposal is still under review so until official changes have been made the ESA affords maximum legal protections to species listed as threatened or endangered under the law and also provides authorization for incidental take permits for take that occurs incidental to otherwise legal operations. To comply with federal laws, additional measures must be taken to ensure that take of ESA-listed species does not occur. Any fatality of a listed species should be reported to the USFWS and the Hawai'i Division of Forestry and Wildlife as soon as possible, and an incident report should be filed within 24 hours of detection of the fatality.

2.2 MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act of 1918, as amended (MBTA), is regulated by the USFWS and prohibits the take of migratory birds. A list of birds protected under MBTA-implementing regulations is published under 50 CFR 10.13. Unless permitted by regulations, under the MBTA, "it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product" (16 United States Code 703–712). The MBTA provides no process for authorizing incidental take of MBTA-protected birds. As a result, birds that are not covered under the ESA that may be adversely affected by the proposed projects cannot be covered by take authorizations. However, the direction of Executive Order 13112 allows for the take of cattle egret (Bubulcus ibis) and barn owl (Tyto alba) by agencies that have functional and/or jurisdictional responsibility for controlling invasive species and protecting native species in Hawai'i (USFWS 2017). Regardless, potential incidental take of MBTA-protected species should be considered during evaluation of the environmental impacts of any proposed project.

3. Project Site and Vegetation Description:

The vegetation on this large property is quite diverse. Several distinctly different habitats are represented, each of which has a different complement of plant species. These habitats fall into five categories, each of which is described separately.

Clubhouse Complex - This approximately 10-acre area contains the clubhouse, office, tennis courts and parking area. These facilities are surrounded by intensively maintained landscaping including shade trees, lawns, hedges and a variety of ornamental plant species. Approximately 40% of the plants on the species inventory fall in this category. Ten common native species were incorporated into this landscape.

Golf Course - The fairways and greens of the approximately 150 acres Makena Golf Course are also an intensively managed landscape. The vast majority of this area consists of a monoculture of Paspalum

grass (*Paspalum vaginatum*) and its varieties that are mowed fertilized, weeded and irrigated to maintain ideal playing surfaces. Planted along the edges of the fairways are a selection of trees, shrubs and ground covers that frame and accent the course. A few native species that have been used include naupaka kahakai (*Scaevola taccada*), hala (*Pandanus tectorius*) and wiliwili (*Erythrina sandwicensis*). Polynesian introductions include niu (*Cocos nucifera*), milo (*Thespesia populnea*) and noni (*Morinda citrifolia*). All of these are common and widespread species in Hawaii.

Coastline - This approximately 4 acre strip of coastal vegetation at Maluaka is mostly naturally occurring and consists of plant species that can withstand salty sea breezes. This rocky coastline is mostly dominated by naupaka kahakai and a variety of non-native shrubs, grasses and weeds. Small amounts of two other native plants, *kīpūkai* (*Heliotropium curassavicum*) and *ʻākulikuli* (*Sesuvium portulacastrum*) were also found here. All of these native plants are common and widespread.

Dry Forests - The dry forest makes up the largest portion of the project area, roughly 370 acres, that surround the golf course and most of the southern part of the area. This forest is dominated by *kiawe* trees (*Prosopis pallida*), sourgrass (*Digitaria insularis*), koa haole (*Leucaena leucocephala*) and wild basil (*Ocimum gratissimum*). Also common are wiliwili (*Erythrina sandwicensis*), Guinea grass (*Megathyrsus maximus*), golden crown-beard (*Verbesina encelioides*), coffee senna (*Senna occidentalis*), lantana (*Lantana camara*), hairy abutilon (*Abutilon grandifolium*), Santa Maria (*Parthenium hysterophorus*), *'ilima* (*Sida fallax*) and keeled wormseed (*Dysphania carinata*). Besides *wiliwili* and *'ilima*, six other native plant species were frequently surveyed in this habitat: *maia pilo* (*Capparis sandwichiana*), *ma'o* (*Abutilon incanum*), *koali kuahulu* (*Merremia aegyptia*), *'uhaloa* (*Waltheria indica*) and *pōpolo* (*Solanum americanum*).



Kumuniu habitat and types of terrain that more time was spent looking for native plants

Aquatic Habitats - This habitat includes about 4 acres of manmade water features within the golf course landscape. Water features support a distinctively different array of vegetation and wildlife that do not occur in drier habitats. Common plant species here included the native *'ae'ae* (*Bacopa monnieri*), *naupaka kahakai*, (*Cyperus polystachyos*) and *hala* (*Pandanus tectorius*) as well as the non-native wedelia (*Sphagneticola trilobatus*), Indian fleabane (*Pluchea indica*), umbrella sedge (*Cyperus involucratus*) and Mexican washingtonia palm (*Washingtonia robusta*).

4. Survey Methodology:

The survey, conducted between September and December 2024, encompassed 1043-acres and involved a combination of survey methods. Perimeter surveys were conducted using an all-terrain vehicle (ATV) to

establish the boundaries of the study area and identify access points. Within the perimeter, transects were surveyed on foot by a team walking side-by-side within view of each other or roughly 10 meters apart. Any questionable species not one hundred percent identifiable by any team member was photographed and sent to the lead botanist to determine immediately what it was or if it needed further investigating. These transect surveys allowed for detailed visual reconnaissance, photographic documentation, and species identification. Emphasis was placed on locating and assessing the health of native plant species, documenting the extent of alien plant species dominance, and observing the impacts of axis deer activity. Extended time was spent in areas that had a higher concentration of *wiliwili* trees, or other natives like *ʻilima* (*Sida fallax*) and *maiapilo* (*Capparis sandwichiana*) as well as in areas where drastic elevation changes occurred from either a ravine or any sort of large hill, mound or rock piles since these areas held a greater possibility of finding other native plant species. Every floral and fauna species observed was then grouped together and listed out in a Table 1 by family and each item, when applicable included the botanical, Hawaiian and common name for each species, their biological status of either being Alien, Polynesian introduced, indigenous or endemic as being noted as Endangered if that was the case. The table also approximates their abundance relative to the rest of the species documented.

5. Flora Survey Findings:
The resulting checklist for the entire project area included 170 plant species. The native and Polynesian introduced species are itemized as follows:

Endemic Hawaiian plants:
wiliwili (*Erythrina sandwicensis*)
maiʻa pilo (*Capparis sandwichiana*)
puakala (*Argemone glauca*)
kumuniu (*Doryopteris decipens*)

Indigenous Hawaiian plants:
kupukupu (*Nephrolepis cordifolia*)
ʻukiʻuki (*Dianella sandwicensis*)
kiolohia (*Cyperus polystachyos*)
hala (*Pandanus tectorius*)
ʻākulikuli (*Sesuvium portulacastrum*)
kīpūkai (*Heliotropium curassavicum*)
koali kuahulu (*Merremia aegyptia*)
naupaka kahakai (*Scaevola taccada*)
ʻilima (*Sida fallax*)
ʻilieʻe (*Plumbago zeylanica*)
ʻuhaloa (*Waltheria indica*)
naio (*Myoporum sandwicense*)
ʻaeʻae (*Bacopa monnieri*)
ʻaʻalii (*Dodonaea viscosa*)
pili (*Heteropogon contortus*)
pōpolo (*Solanum americanum*)
pōhinahina, manawanawa (*Vitex rotundifolia*)

ma′o (*Abutilon incanum*)
niu, coconut (*Cocos nucifera*)
moa (*Psilotum nidum*)
′ala′alawainui (*Peperomia blanda*)
alena (*Boerhavia repens*)

Polynesian introduction:
hau (*Hibiscus tiliaceus*)
milo (*Thespesia populnea*)
kī, ti leaf (*Cordyline fruticosa*)
′ape (*Alocasia macrorrhiza*)
noni (*Morinda citrifolia*)
kukui (*Aleurites mollucana*)

The remaining 139 species are non-native, ornamental plants or naturalized trees, shrubs, vines or herbaceous plants and can be seen on the attached Table 1. Flora and Fauna Species List

- **Dominant Tree Species:** The native *wiliwili* tree (*Erythrina sandwicensis*) was present throughout the site and shared a sizable amount of canopy space, with visual observation suggesting approximately 20 percent of the overall coverage. The rest of the canopy coverage is heavily dominated by introduced trees, most notably *kiawe* (*Prosopis pallida*) and *koa haole* (*Leucaena leucocephala*).
- **Wiliwili Regeneration Crisis:** Existing mature *wiliwili* trees produce a large amount of seeds annually, although no precise count was made. Observations noted multiple average sized trees between 15 to 20 ft tall had over a 1,000 seed pods totaling over 2,500 seeds on each tree. However, seedling recruitment is virtually non-existent due to axis deer predation and competition for water resources and suitable germinating substrate from invasive grasses and shrubs. Within the entire restoration site, only one seedling was documented yet over 100 mature *wiliwili* trees were observed to be dead or in grave decline as a result of prolonged and severely dry soil from surrounding invasive plant competition as well as scarring and root trampling from Axis deer. There were also three trees observed to be hollowed out and subsequently occupied by barn owls (*Tyto alba*) or honey bees (*Apis mellifera*)
- **Understory Composition:** The understory is almost entirely composed of non-native grasses and shrubs, creating a dense, dry fuel load and significantly increasing the risk of wildfires.
- **Axis Deer Impact:** *Axis deer* (*Axis axis*) are a major ecological driver of degradation. Their browsing pressure on seedlings and saplings prevents native plant regeneration, contributes to soil erosion, and facilitates the spread of invasive plants. Deer scat and tracks were observed throughout the survey area.
- **Remaining Native Species:** *ʻUhaloa* (*Waltheria indica*), ma'o (*Abutilon incanum*) and *ʻilima* (*Sida fallax*) were observed relatively frequently. *Maiapilo* (*Capparis sandwichiana*) was present but in much lower numbers than expected compared to parallel elevations on properties adjacent to this site. Only one endemic prickly poppy (Puakala) was seen as well as only one patch of *ʻAlaʻalawainui* (*Peperomia blanda*) and one small area of *ʻilieʻe* (*Plumbago zeylanica*).

6. Threats to Native Flora:

- **Axis Deer:** Direct browsing, erosion, and invasive species dispersal. Increased spread of less desirable foraging
- **Invasive Plant Species:** Competition for resources, altered fire regimes, and habitat degradation.
- **Fire:** The high fuel load of non-native grasses in this extremely dry environment creates favorable conditions for fast spreading fire potential.
- **Habitat Loss and Fragmentation:** Past land use practices, dominant alien plant communities and future development plans could further contribute to habitat loss and increase distances between healthier native plant populations.

7. Restoration Recommendations:

We recommend using native plant species for landscaping that are appropriate for the area, i.e., plants for which climate conditions are suitable for them to thrive, plants that historically occurred there, etc. For guidance, please refer to www.plantpono.org on the selection and evaluation of landscaping plants and to determine the potential invasiveness of plants proposed for use in the project.

We recommend minimizing the movement of plant or soil material between worksites. Soil and plant material may contain detrimental fungal pathogens (e.g., Rapid 'Ohi'a Death), vertebrate and invertebrate pests (e.g., Coqui Frogs, Little Fire Ants, etc.), or invasive plant parts (e.g., Miconia, Mullein, etc.) that could harm our native species and ecosystems. We recommend consulting the Maui Invasive Species Committee (MISC) at (808) 573-6472 to help plan, design, and construct the project, learn of any high-risk invasive species in the area, and ways to mitigate their spread. All equipment, materials, and personnel should be cleaned of excess soil and debris to minimize the risk of spreading invasive species.

The invasive Coconut Rhinoceros Beetle (CRB) or Oryctes rhinoceros is found on the islands of O'ahu, Hawai'i Island, Maui and Kaua'i. On July 1, 2022, the Hawai'i Department of Agriculture (HDOA) approved Plant Quarantine Interim Rule 22-1. This rule restricts the movement of CRB-host material within or to and from the island of O'ahu, which is defined as the Quarantine Area. Regulated material (host material or host plants) is considered a risk for potential CRB infestation. Host material for the beetle specifically includes (a) entire dead trees, (b) mulch, compost, trimmings, fruit and vegetative scraps, and (c) decaying stumps. CRB host plants include the live palm plants in the following genera: Washingtonia, Livistona, and Pritchardia (all commonly known as fan palms), Cocos (coconut palms), Phoenix (date palms), and Roystonea (royal palms). When such material or these specific plants are moved there is a risk of spreading CRB because they may contain CRB in any life stage. For more information regarding CRB, please visit https://dlnr.hawaii.gov/hisc/info/invasive-species profiles/coconut-rhinoceros-beetle/.

Avoid importing soil or other plant material from off-island. Soil and plant material may contain fungi (e.g., Rapid 'Ohi'a Death) and other pathogens that could harm our native species and ecosystems. We recommend consulting the Hawai'i Interagency Biosecurity Plan at http://dlnr.hawaii.gov/hisc/plans/hibp/ in planning, design, and construction of the project.

We recommend that Best Management Practices are employed during and after construction to contain any soils and sediment with the purpose of preventing damage to near-shore waters and marine ecosystems.

8. Conclusion:

The Makena area, despite its current degraded condition, holds significant potential for ecological restoration. The remnant *wiliwili* forest and the presence of rare endemic species provide a foundation and blueprint upon which to rebuild a healthy native ecosystem. By implementing the comprehensive restoration strategy outlined in this report, it is possible to mitigate the threats posed by invasive species and axis deer, promote the recovery of native plant communities, and enhance the ecological integrity and aesthetic value of this unique landscape. Restoring this area throughout the progression of construction offers a rare opportunity to showcase the potential for ecological restoration and create a lasting legacy of conservation enhanced development.



Bark of a healthy wiliwili tree



Peeled off translucent outer bark of mature wiliwili tree with the sun shining through



Large bee hive in hollowed out trunk of a dying wiliwili tree



Only wiliwili seedling seen in entire survey



Large healthy wiliwili tree



New leaf growth on wiliwili



Wiliwili seed pod with ripe seeds

FAUNA SURVEY REPORT

Survey Methods

A walk-through fauna survey method was conducted in conjunction with the botanical survey. All parts of the project area were covered, including the clubhouse, complex, golf course, coastline and aquatic habitat. Field observations were made with the aid of binoculars and by listening to vocalizations. Notes were made on species, abundance, activities and location as well as observations of trails, tracks, scat and signs of feeding. In addition, an evening visit was made to record crepuscular activities and vocalizations and to see if there was any evidence of occurrence of the Hawaiian hoary bat (*Lasiurus cinereus semotus*) in the area.

RESULTS

MAMMALS

Four mammal species were observed during five visits to this large property.

Axis deer (Axis axis) – Signs of deer were observed in all parts of this project area in the form of trails, tracks, feeding sign, antler rubbings and droppings. These animals are active nocturnally, mobilizing at dusk to feed in the forests, fairways and lush landscaped areas under the cover of darkness.

Domestic cattle (Bos Taurus) – Signs of the presence of cattle was seen in the upper north corner of the property above the fence.

Mongoose (Herpestes auropunctata) – A few individuals were seen near the fairways and in the forest.

'Ōpe'ape'a, Hawaiian hoary bat (*Lasiurus cinereus semotus*)* Endangered Species – A special effort was made to look for these endemic and Endangered bats at four locations during an evening survey. A bat detector device (Batbox IIID) was utilized, set to a frequency of 27,000 Hertz which is the frequency at which these bats emit pulses of sound to home in on nocturnal flying insect prey. Bats were detected at two of the four sampling sites. These bats are strong fliers that cover a lot of ground during a night of hunting and are known to range widely during the seasons as they follow insect activities.

Although none were observed during this survey other non-native mammals that are likely to be found in this habitat are feral pigs (*Sus scrofa*), feral cats (*Felis catus*), rats (*Rattus spp*.), mice (*Mus domesticus*) and occasionally domestic dogs (*Canis familiaris*).

BIRDS

Birdlife was diverse because of the size of the property and the wide range of habitats present. Twenty-two species were recorded during five site visits. Taxonomy and nomenclature follow the American Ornithologists' Union (2020). Three endemic wetland bird species were seen swimming around the water hazards within the golf course: the Endangered *'alae ke'oke'o* or Hawaiian coot (*Fulica alai*), the Endangered *ae'o* or Hawaiian stilt (*Himantopus mexicanus knudseni*), and the Endangered koloa duck (*Anas wyvilliana*). It should be noted that outside of Kaua'i all other populations of koloa duck are considered hybridized with Mallard ducks (Gorresen, et al. 2024).

The endemic *pueo* or Hawaiian short-eared owl (*Asio flammeus sandwichensis*) was observed flying in the early evening and morning along the upper perimeter of golf course and also perched on a fence on the upper perimeter of the property. No nests were observed of any of these species.

Three migratory bird species were seen: the *kōlea* or Pacific golden-plover (*Pluvialis fulva*) were most observed with the fairways of the golf course, a large flock of *'iwa* or great frigate birds (*Fregata minor palmerstoni*) were regularly seen flying in a cluster between the farm and Pu'u 'Ola'i, and the *'ūlili* or wandering tattler (*Tringa incana*) were seen along the exposed 'a'a lava.

The indigenous *'auku'u* or black-crowned night-heron (*Nycticorax nicticorax hoactli*) were also present around the water features.

Fourteen non-native bird species were also present. Four species were common within the project area: the common myna (*Acridotheres tristis*), the zebra dove (*Geopelia striata*), the spotted dove (*Streptopelia chinensis*), the gray francolin (*Francolinus pondicerianus*). An additional four species were uncommon here: the cattle egret (*Bubulbus ibis*), the northern cardinal (*Cardinalis cardinalis*), the barn owl (*Tyto alba*) and the African silverbill (*Lonchura cantans*). The remaining six non-native species were sighted but of rare occurrence and can be seen in Table 1. FLORA AND FAUNA SPECIES LIST

INSECTS

Insect life was moderate in diversity and in total numbers. Twenty-two species were recorded, representing six insect orders. Three species were common throughout the project area: the kiawe moth (*Anacamptodes fragilaria*), the dung fly (*Musca sorbens*) and the sleepy orange butterfly (*Eurema niccipe*). Six species were uncommon: the bluebottle fly (*Calliphora vicina*), the passion flower butterly (*Agraulis vanillae*), the Cuban koa haole psyllid (*Heteropsylla cubana*), the Sonoran carpenter bee (*Xylocopa sonorina*), the big-headed ant (*Pheidole megacephala*) and the globe skimmer dragonfly (*Pantala flavescens*). Thirteen other insect species were of rare occurrence.

Two indigenous dragonflies, the *pinao* or green darner and the globe skimmer (also called *pinao*), were the only two native insects observed during the survey. Both are widespread and common in Hawaii.

REPTILES

One non-native mourning gecko (*Lepidodactylus lugubris*) was heard calling in the forest during the evening survey.

MOLLUSKS

One non-native terrestrial giant African snail (Achatina fulica) was found to be common throughout the project area. There were also a few deposits of stream and ocean mollusks found in or around archaeological sites.



One of several Axis deer carcass seen throughout survey area



Archaeological cache containing native freshwater mollusks and ocean echinoderms fragments



‘ilima shrubs amongst other alien grasses
Luhe e cowrie shell lure at potential archaeological site



‘Ae’o and ‘Alae ke’oke’o forage along
End of Summer. Iwa Bird Congregation
retention pond margin

Mitigation Recommendations:

1. The ʻŌpeʻapeʻa or Hawaiian Hoary Bat could potentially occur at or in the vicinity of the project and may roost in nearby trees. Ay required site clearing should be timed to avoid disturbance to bats during their birthing and pup rearing season (June 1 through September 15). During this period woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed. Barbed wire should also be avoided for any construction because bats can become ensnared and killed by such gencing material during flight.

2. Artificial lighting can adversely impact seabirds that may pass through the area at night by causing them to become disoriented. This disorientation can result in their collision with manmade structures or the grounding of birds. Nighttime work that requires outdoor lighting should be avoided during the seabird fledging season, from September 15 through December 15, when young seabirds make their maiden voyage to sea. If nighttime construction is required during the seabird fledgling season (September 15 to December 15), we recommend lights used be fully shielded to minimize the attraction of seabirds and a qualified biologist be present at the project site to monitor and assess the risk of seabirds being attracted or grounded due to the lighting. If seabirds are seen circling around the area, lights should then be turned off. If a downed seabird is detected, please follow DOFAW's recommended response protocol by visiting https://dlnr.hawaii.gov/wildlife/seabird-fallout-season/.

3. Permanent lighting also poses a risk of seabird attraction and as such should be minimized or eliminated to protect seabird flyways and preserve the night sky. For illustrations and guidance related to seabird-friendly light styles that also protect seabirds and the dark starry skies of Hawai'i please visit https://dlnr.hawaii.qov/wildlife/files/2016/03/DOC439.pdf.

4. The State endangered 'ilio holo i ka uaua or Hawaiian Monk Seal, honu 'ea or Hawksbill Sea Turtle, and threatened honu or Green Sea Turtle could potentially occur or haul out onshore within the vicinity of the proposed project site. Nesting season is April through December for honu and May through December for honu 'ea. 'Ilio holo i ka uaua can give birth to pups all year round. If either species is detected within 100 feet (30 meters) of the project area, all nearby construction operations should cease and not continue until the focal animal has departed the area on its own accord.

5. State-listed waterbirds such as ae'o or Hawaiian stilt, 'alae ke'oke'o or Hawaiian coot, koloa maoli or Hawaiian Duck, and nene or Hawaiian Goose could potentially occur at or in the vicinity of the proposed project site. It is against State law to harm or harass these species. If any of these species are present during construction, all activities within 100 feet (30 meters) should cease and the bird or birds should not be approached. Work may continue after the bird or birds leave the area of their own accord. If a nest is discovered at any point, please contact the Maui Branch DOFAW Office at (808) 984-8100 and establish a buffer zone around the nest.

6. The endemic pueo or Hawaiian short-eared owl could potentially nest in the project area. Pueo nest on the ground and active nests have been found year-round. Before any potential vegetative alteration, especially ground-based disturbance, we recommend that line transect surveys are conducted during

crepuscular hours through the project area. If a pueo nest is discovered, a minimum buffer distance of 100 meters from the nest should be established until chicks are capable of flight.

7. The project area is within the range of the State listed Blackburn's Sphinx Moth (BSM). Larvae of BSM feed on many nonnative host plants, which includes tree tobacco, that grow in disturbed soil. We recommend contacting the Maui Branch DOFAW Office at (808) 984-8100 for further information about where BSM may be present and whether a vegetation survey should be conducted to determine the presence of plants preferred by BSM. We recommend removing plants less than one meter in height or during the dry season to avoid harm to BSM. If you intend to either remove tree tobacco over one meter in height or to disturb the ground around or within several meters of these plants, they must be thoroughly inspected by a qualified entomologist for the presence of BSM eggs and larvae.

8. There could potentially be impacts to vulnerable birds from nonnative predators such as cats, rodents, and mongooses. We recommend taking action to minimize predator presence; remove cats, place bait stations for rodents and mongoose, and provide covered trash receptacles. Cats prey on native birds, including State-listed endangered waterbirds, seabirds, and forest birds.

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Honolulu. Revised edition.

Table. 1 FLORA AND FAUNA SPECIES LIST

STATUS KEY:	STATUS KEY:	ABUNDANCE KEY:	ABUNDANCE KEY:		
A= Alien Species (Intoduced by man after the arrival of Capt. Cook in1778)	**E**= Endemic Species (Only found in Hawaii) **E***= Endangered Species	**1**= Low Occurrence <5 times in each site it was found in. Letters parentheses (ABC) tell which site the relative abundance refers to	**5**= Dominant relative to all other species; found throughout site.		
P= Polynesian Intro. (Introduced by Polynesians prior to 1778)	**I**= Indigenous Species (Native to Hawaii and elsewhere)	**2 -4**= Relatively Low to Highly Abundant within each site it was found in			
	V= Visitor. Birds that only spend a portion of the year here mainly to breed.				
Family	***Species***	**Hawaiian Name**	**Common Name**	**Status**	**Abundance**
DICOTYLEDONES					
ACANTHACEAE					
	Asystasia gangetica		Chinese violet	A	3
	Barleria repens		Coral Creeper	A	2
	Justicia betonica		White Shrimp Plant	A	2
	Ruellia simplex		Mexican Petunia	A	2
AIZOZACEAE					
	Carpobrotus edulis		Ice Plant	A	2
	Sesuvium portulacastrum	ʻĀkulikuli	Sea Purslane	I	1
AMARANTHACEAE					
	Amaranthus spinosus		Spiny Amaranth	A	2
	Amaranthus viridus		Slender Amaranth	A	2
	Chenopodium murale		Goosefoot	A	2
	Dysphania carinata		Keeled Wormseed	A	3
ANACARDIACEAE					
	Mangifera indica	Manakō, Meneke	Mango	A	2
	Schinus terebinthifolius	Wili Laiki	Christmasberry	A	2
APOCYNACEAE					
	Asclepias physocarpa		Balloon Plant	A	2
	Calotropis procera		Small Crown Flower	A	3
	Carissa macrocarpa		Natal Plum	A	2
	Nerium oleander		Oleander	A	2
	Plumeria obtusa	Puamelia	Singapore Plumeria	A	2
	Plumeria rubra	Puamelia	Red Plumeria	A	2
	Stapelia gigantea		Giant Carrion Flower	A	3
	Thevetia peruviana		Be-Still	A	2
ARALIACEAE					
	Schefflera actinophylla	He’e	Octopus Tree	A	2
ASTERACEAE					

	Ageratum conyzoides	Maile hohono	Tropic Ageratum	A	2
	Bidens alba	Kīnehe	Spanish Needle	A	3
	Bidens pilosa	Kīnehe	Spanish Needle	A	3
	Conzya bonariensis		Hairy Horseweed	A	3
	Cyanthillium cinereum		Little Ironweed	A	2
	Gaillardia pulchella		Indian Blanketflower	A	2
	Parthenium hysterophorus		Santa Maria	A	4
	Pluchea carolinensis		Sourbush	A	3
	Pluchea indica		Indian Fleabane	A	3
	Pluchea x fosbergii		Hybrid Pluchea	A	1
	Seneco madagascarensis		Madagascar Fireweed	A	3
	Sphagneticola trilobata		Wedelia	A	3
	Tridax procumbens		Coat buttons	A	3
	Verbesina encelioides		Golden Crown-Beard	A	5
BIGNONIACEAE					
	Spathodea campanulata		African Tulip Tree	A	2
BORAGINACEAE					
	Heliotropium curassavicum	Kīpūkai		I	1
	Heliotropium procumbens		Fourspike Heliotrope	A	2
	Tournefortia argentea		Tree Heliotrope	A	2
CACTACEAE					
	Opuntia ficus-indica	Pānini	Indian Fig Opuntia	A	3
CAPPERACEAE					
	Capparis sandwichiana	Maiapilo	Hawaiian Caper	E	3
CLUSIACEAE					
	Clusia rosea		Autograph Tree	A	2
COMBRETACEAE					
	Terminalia catappa		Tropical Almond	A	2
CASUARINACEAE					
	Casuarina equisetifolia		Ironwood	A	2
CONVOLVULACEAE					
	Ipomoea indica	Koali ʻawa	Blue Morning Glory	I	2
	Ipomoea sp				1
	Merremia aegyptia	Koali kuahulu	Wood Rose	A	2
CURCUBITACEAE					
	Cucumis dipsaceus		Hedgehog gourd	A	2
	Momordica charantia		Bittermelon	A	
EUPHORBIACEAE					

	Aleurites molucanna	Kukui	Candlenut Tree	P	2
	Codiaeum variegatum		Croton	A	2
	Euphorbia heterophylla	Kaliko	Mexican Fire Plant	A	2
	Euphorbia hirta		Hairy Spurge	A	2
	Euphorbia milii		Crown of Thorns	A	2
	Euphorbia thymifolia		Thyme-Leaf Spurge	A	2
	Ricinus communis	Pā'alai	Castor Bean	A	2
FABACEAE					
	Acacia confusa		Formosa Koa	A	2
	Chamaecrista nictitanus		Partridge Pea	A	2
	Crotalaria incana		Fuzzy Rattlepod	A	2
	Crotalaria pallida		Smooth Rattlepod	A	3
	Desmathus pernambucanus		Slender Mimosa	A	3
	Desmodium tortuosum		Florida beggars	A	2
	Erythrina sandwicensis	Wiliwili		E	4
	Indigofera spicata		Creeping indigo	A	2
	Indigofera suffruticosa	'Inkō	Indigo	A	3
	Leucaena leucephalla	Koa Haole	White Lead Tree	A	4
	Macroptilium atropurpurea		Siratro	A	2
	Macroptilium lathyroides		Cow pea	A	2
	Mimosa pudica	Hilahila	Sleeping Grass	A	2
	Neonotonia wightii		Glycine	A	3
	Prosopis pallida	Misquete	Kiawe	A	5
	Samanea saman	Ohai, Pū 'Ohai Haole	Monkeypod Tree	A	3
	Senna oxydentalis		Coffee Senna	A	4
	Senna septemptrionalis	Kolomona Haole	Arsenic Bush	A	2
	Senna surratensis	Kolomona Haole	Scrambled Egg Tree	A	2
GOODENIACEAE					
	Scaevola taccada	Naupaka Kahakai		I	3
LAMIACEAE					
	Hyptis pectinata		Comb Hyptis	A	2
	Leonotis nepetifolia		Lions Ear	A	4
	Ocimum gratissimum		Wild Basil	A	4
MALVACEAE					
	Abutilon grandifolium		Hairy Abutilon	A	3
	Abutilon incanum	Ma'o	Hoary Abutilon	I	2
	Hibiscus x rosa-cinensis		Hibiscus cultivar	A	2
	Hibiscus tiliaceus	Hau		P	3
	Malva parviflora		Cheeseweed	A	2
	Sida ciliaris		Bracted Fanpetals	A	3
	Sida fallax	Ilima		I	3
	Sida rhombifolia		Arrowleaf Sida	A	3
	Sida spinosa		Prickly Sida	A	3
	Thespesia populnea	Milo		P	2
	Waltheria indica	'Uhaloa		I	3

MELIACEAE					
	Melia azedarach		Pride of India	A	2
MORACEAE					
	Ficus lyrata		Fiddleleaf Fig	A	2
	Ficus microcarpa		Chinese Banyan	A	2
MYOPORACEAE					
	Myoporum sandwicense	Naio		I	2
NYCTAGINANCEAE					
	Boerhavia coccinea		Scarlet spiderling	A	3
	Boerhavia repens	Alena		I	2
	Bougainvillea spectabilis		Bougainvillea	A	3
PAPAVERACEAE					
	Argemone glauca	Puakala		E	1
	Argemone mexicana		Mexican Poppy	A	2
PASSIFLORACEAE					
	Passiflora suberosa		Cork-bark Passionfruit	A	2
PHYTOLACCACEAE					
	Rivina humilis		Coral Berry	A	2
PIPERACEA					
	Peperomia blanda	‘Ala’alawainui		I	1
PLANTAGINACEAE					
	Bacopa monnieri	‘Ae’ae		I	2
PLUMBAGINACEAE					
	Plumbago auriculata		Blue Plumbago	A	2
	Plumbago zeylanica	‘Ilie’e		I	1
PORTULACACEAE					
	Portulaca oleracea		Common Purslane	A	2
	Portulaca pilosa		Hairy Purslane	A	3
POLYGONACEAE					
	Triplaris americana		Long John	A	1
PROTEACEAE					
	Grevillea robusta		Silver/Silk Oak	A	1
RUBIACEAE					
	Morinda citrifolia	Noni	Indian Mulberry	P	1

RUTACEAE					
	Murraya paniculata		Mock Orange	A	2
SAPINDACEAE					
	Dodonaea viscose	‘A’ali’i		I	2
SOLANACEAE					
	Capsicum annuum		Chilipeppars	A	2
	Datura stramonium		Jimson weed	A	2
	Nicotiana glauca		Wild Tree Tobacco	A	3
	Solanum americanum	Pōpolo, ‘Olohua, Polopolo, Pōpolohua	Glossy Nightshade	I	2
	Solanum linnaeanum		Apple-of-Sodom	A	2
	Solanum lycopersicum		Cherry Tomato	A	2
	Solanum seaforthianum		Brazilian Nightshade	A	4
VERBENACEAE					
	Duranta erecta		Golden Dew-Drop	A	2
	Lantana camara		Lantana	A	4
	Vitex rotundifolia	Pōhinahina, Kolokolo Kahakai, Kolokolo, Manawananwa		I	2
MONOCTYLEDONES					
AMARYLLIDACEAE					
	Crinum asiaticum		Spider Lily	A	2
	Crinum augustum		Queen Emma Lily	A	2
ARACEAE					
	Alocasia macrorrhizos	‘Ape		P	1
	Epipremnum pinnatum		Taro Vine, Pothos	A	2
	Monstera deliciosa		Monstera	A	2
	Philodendron bipinnatifidum		Selloum	A	2
	Philodendron xanadu		Xanadu	A	2
ARECACEAE					
	Archontophoenix alexandrae		Alexandra Palm	A	2
	Cocos nucifera	Niu	Coconut Tree	I	3
	Dypsis lutescens		Golden-Fruited Palm	A	2
	Phoenix roebelenii		Dwarf Date Palm	A	2
	Pritchardia thurstonii	Loulu Haole	Fan Palm	A	2
	Ptychosperma elegans		Solitaire Palm	A	2
	Raphis excelsa		Bamboo Palm	A	2
	Washingtonian robusta		Mexican Palm	A	2
	Wodyetia bifurcata		Foxtail Palm	A	2
ASPARAGACEAE					
	Asparagus densiflorus		Sprengers asparagus	A	2
	Cordyline fruticosa	Lā’ī, Kī	Ti Leaf	P	2
	Dracaena fragrans		Money Tree	A	2
	Furcraea foetida		Mauritius Hemp	A	3

	Ophiopogon jaburan		Lily Turf	A	2
	Ophiopogon japonicus		Mondo grass	A	2
ASPHODELACEAE					
	Dianella sandwicensis	‘Uki’uki		I	1
BROMELIACEAE					
	Aechmea blanchetiana		Blanchet’s Bromeliad	A	2
	Aechmea ornarta		Ornate Bromeliad	A	2
CYPERACEAE					
	Cyperus gracilis		McCoy Sedge	A	2
	Cyperus involucratus		Umbrella Sedge	A	2
	Cyperus polystachos	Kiolohia		I	2
	Cyperus rotundus		Nut-Sedge	A	2
	Kyllinga brevifolia	Kili'o'opu Haole		A	3
MUSACEAE					
	Musa acuminata x balbisiana		Banana	A	2
PANDANACEAE					
	Pandanus tectorius	Hala, Pū Hala	Corkscrew Pine	I	2
POACEAE					
	Bothriochloa pertusa		Pitted Beardgrass	A	3
	Cenchrus ciliaris		Buffel Grass	A	4
	Chloris barbata		Swollen Fingergrass	A	3
	Digitaria insularis		Sourgrass	A	5
	Heteropogon contortus	Pili	Tanglehead Grass	I	3
	Megathyrsus maximus		Guineagrass	A	4
Ferns and Fern Allies					
NEPHROLEPIDACEAE					
	Nephrolepis brownii		Asian Swordfern	A	2
	Nephrolepis cordifolia	Kupukupu		I	1
	Nephrolepis multiflora	Kupukupu haole		A	2
POLYPODIACEAE					
	Phlebodium aureus	Laua’e haole	Rabbit’s Foot Fern	A	1
	Phymatosorus grossus	Laua’e (Haole)	Maile Scented Fern	A	2
PSILOTACEAE					
	Psilotum nudum	Moa	Whisk fern	I	1
PTERIDACEAE					
	Doryopteris decipiens	Kumuniu		E	1

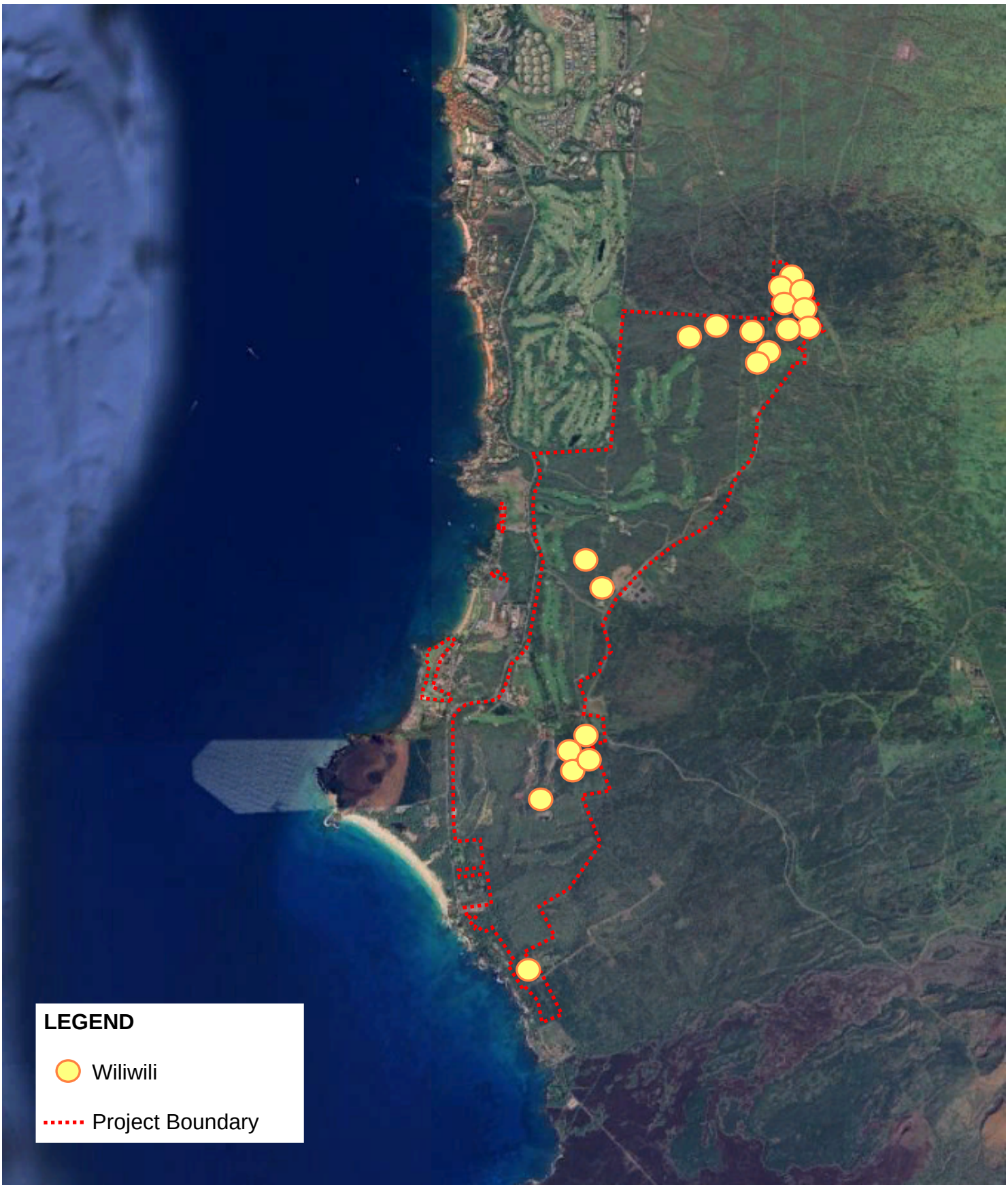
Mammals					
CERVIDA					
	Axis axis		Axis Deer	A	3
BOVIDAE					
	Bos taurus		Domestic Cattle	A	1
VIVERRIDAE					
	Herpestes auropunctatus		Mongoose	A	2
VESPERTILIONIDAE					
	Lasiurus cinereus	Ōpe'ape'a	Hawaiian Hoary Bat	E	1
Birds					
ANATIDAE					
	Anas playtrhynchos		Mallard Duck	A	1
	Anas wyvilliana	Koloa	Hawaiian Duck	E*	1
ARDEIDAE					
	Bubulcus ibis		Cattle Egret	A	2
	Nycticorax nycticorax hoactli	'Auku'u	Black Crowned Night Heron	I	1
CARDINALIDAE					
	Cardinalis cardinalis		Northern Cardinal	A	2
CHARADRIIDAE					
	Pluvialis fuel a	Kōlea	Pacific Golden Plover	V	2
COLUMBIDAE					
	Geopelia striata		Zebra Dove	A	3
	Streptopelia chinensis		Spotted Dove	A	3
ESTRILDIDAE					
	Lonchura cantans		African Silverbill	A	1
	Lonchura punctulata		Nutmeg Mannikin	A	2
FREGATIDAE					
	Fregata minor palmerstoni	'Iwa	Great Frigatebird	I	2
MIMIDAE					
	Minus polyglottos		Northern Mockingbird	A	1
PASSERIDAE					
	Passer domesticus		House Sparrow	A	2
PHASIANIDAE					
	Fancolinus pondicerianus		Gray Francolin	A	3
RALLIDAE					
	Fulica alai	Alae ke'oke'o	Hawaiian Coot	E*	2
RECURVIROSTRIDAE					
	Himantopus Mexicans knudseni	Ae'o	Hawaiian Stilt	E*	2
SCOLOPACIDAE					

	Tringa incana	ʻŪlili	Wandering Tattler	V	1
STRIGIDAE					
	Asio flammeus	Pueo	Hawaiian Owl	E	1
STURNIDAE					
	Acridotheres tristis		Common Myna	A	2
THRAUPIDAE					
	Paroaria coronata		Red-Crested Cardinal	A	2
TYTONIDAE					
	Tyto alba		Barn Owl	A	2
ZOSTEROPIDAE					
	Zosterops japonicus		Mejiro, Japanese White-eye	A	3
Insects					
Order ARANAE	True Spiders				
SALTICIDAE	Jumping Spiders				
	Menemerus bivitttatus		Gray Wall Jumping Spider	A	2
Order DIPTERA	Flies				
CALLIPHORIDAE	Blowflies				
	Calliphora vicina		Blue Bottle Fly	A	3
CULICIDAE	Mosquitos				
	Culex quinquefasciatus		Southern House Mosquito	A	2
MUSCIDAE	Houseflies				
	Musca domestica		Housefly	A	2
	Musca sorbens		Dungfly	A	4
Order HEMIPTERA	True Bugs				
PSYLLIDAE	Jumping Plant Lice				
	Heteropsylla cubana		Cuban Koa Haole Psyllid	A	2
RHOPALIDAE	Sentless Plant Bug				
	Jadera haematoloma		Red-shouldered Bug	A	2
Order HYMENOPTERA	Bees, Wasps, Ants				
APIDAE	Honey Bees				
	Apis mellifera		Honey Bee	A	4
	Xylocopa sonorina		Carpenter Bee	A	3
FORMICIDAE	Ants				
	Pheidole megacephala		Big Headed Ant	A	3
Order LEPIDOPTERA	Butterflies and Moths				
GEOMETRIDAE	Geometer Moths				
	Anacamptodes fragilaria		Kiawe Moth	A	4
NYMPHALIDAE	Brushfooted Butterflies				
	Agraulis vanillae		Passion Flower Butterfly	A	3
	Danaus plexippus		Monarch Butterfly	A	2
PIERIDAE	White and Sulpher Butterflies				
	Eurema niccipe		Sleepy Orange Butterfly	A	4
	Pieris rapae		Cabbage Butterfly	A	2

Order ODONATA	Dragonflies and Damselflies				
AESHNIDAE	Hawker Dragonflies				
	Anax junius	Pinao	Green Darner	I	2
LIBELLULIDAE	Skimmer Dragonflies				
	Orthemis ferruginea		Roseate Skimmer	A	2
	Pantala flavenscens	Pinao	Globe Skimmer	I	3
	Tramea lacerata		Black Saddlebags	A	2
Order ORTHOPTERA	Grasshoppers and Crickets				
ACRIDIDAE	Grasshoppers				
	Oedaleus abruptus		Short-Horned Grasshopper	A	2
	Schistocerca nitens		Graybird Grasshopper	A	2
	Timeroptropis pallidipennis		Pallid-winged Grasshopper	A	2
Mollusks					
ACHATINIDAE	Achatinid Snails				
	Achatina fulica		Giant African Snail	A	4
Reptiles					
GEKKONIDAE	Geckos				
	Lepidodactylus lugubris		Mourning gecko	A	2

Hui kū Maoli Ola

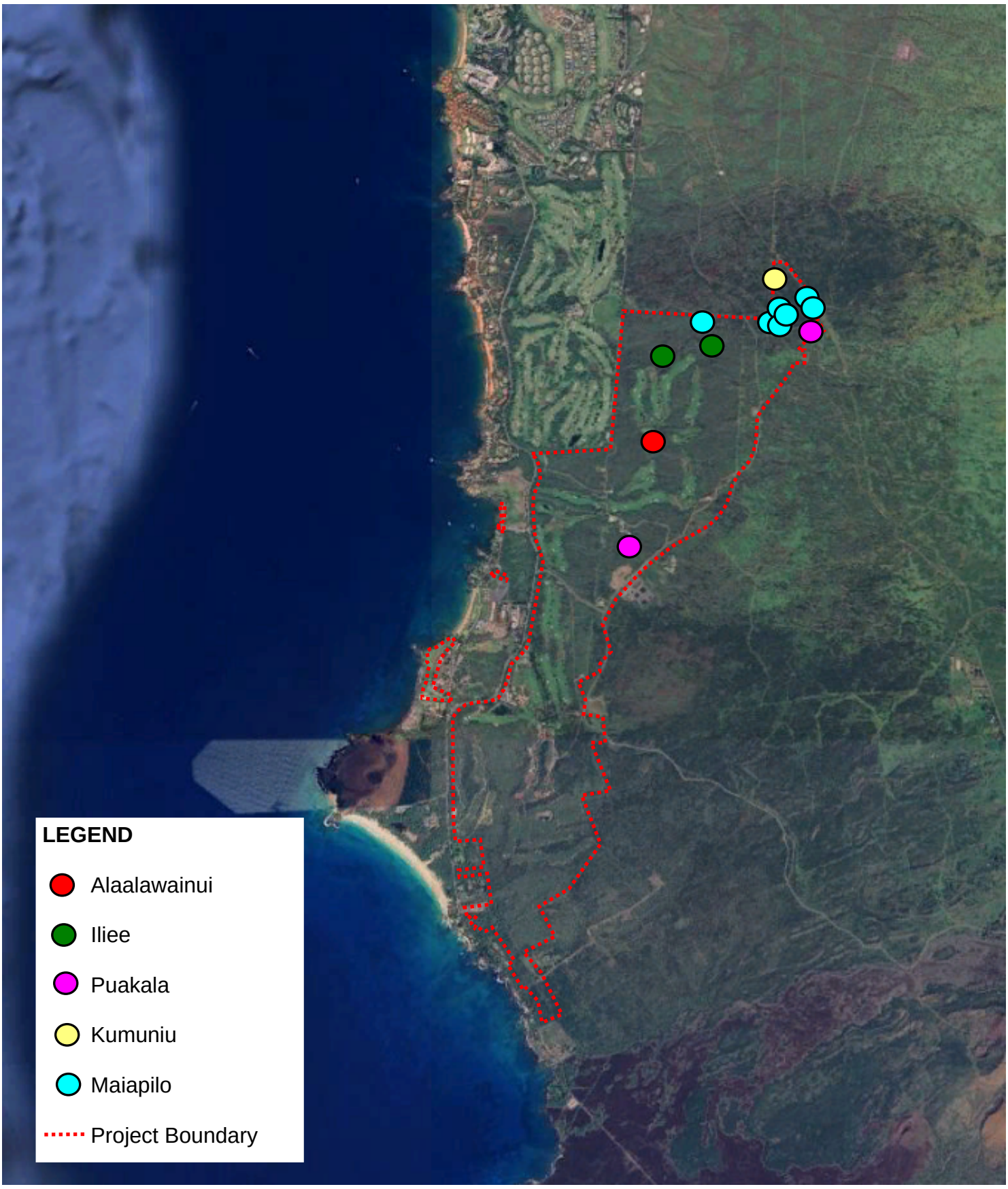
Wiliwili (Erythrina sandwicensis)
Land Survey by Hui Kū Maoli Ola



Created by: Sierrah Teramura, Hui Kū Maoli Ola
Created on: March 31, 2025
Data collected by field survey.

Hui kū Maoli Ola

Land Survey by Hui Kū Maoli Ola



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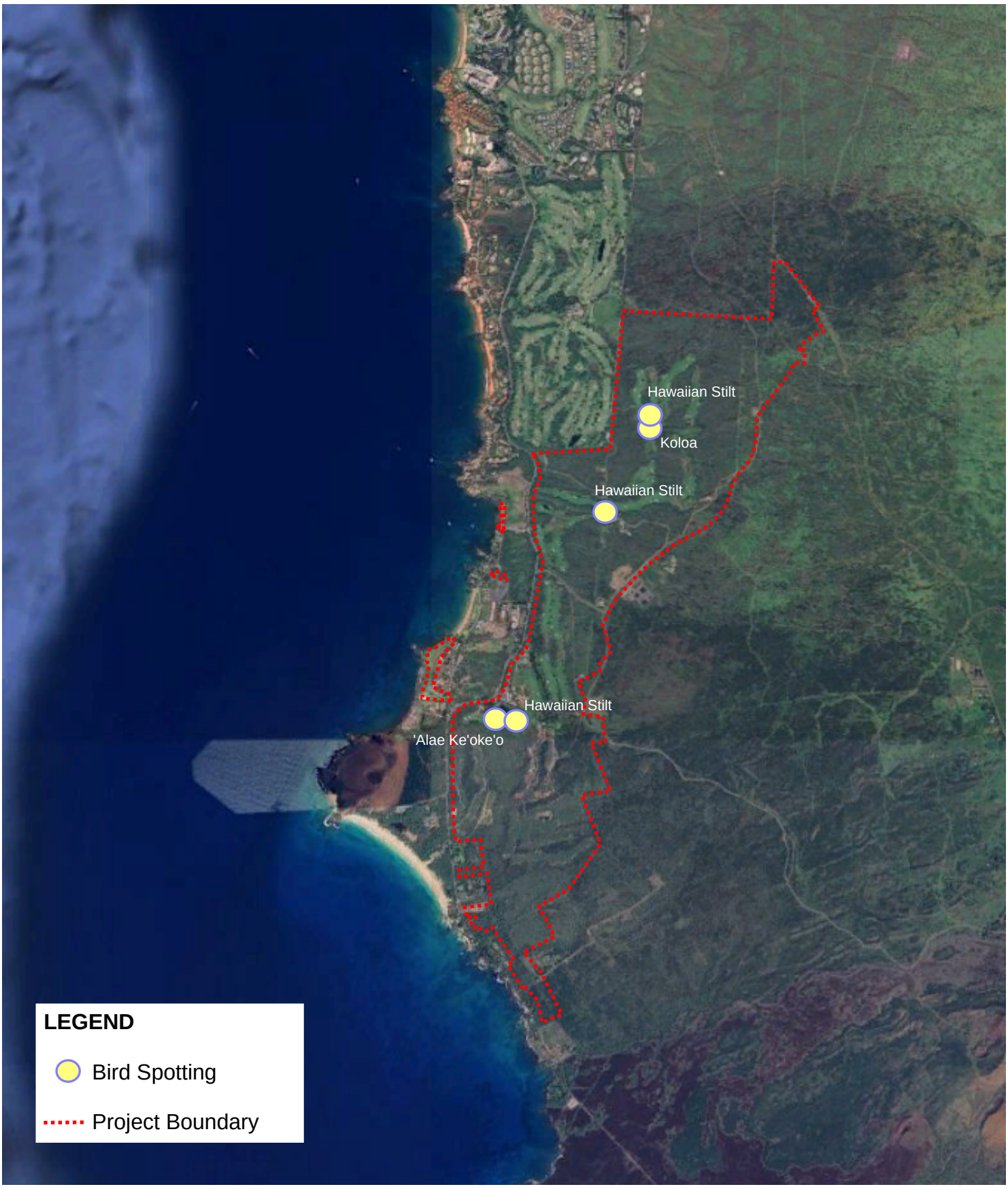
Created on: March 31, 2025
Data collected by field survey.

Hui kū Maoli Ola

Land Survey by Hui Kū Maoli Ola



Created by: Sierrah Teramura, Hui Kū Maoli Ola
Created on: March 31, 2025
Data collected by field survey.

APPENDIX

IPAC REPORT O-1

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish And Wildlife Office
300 Ala Moana Boulevard, Box 50088
Honolulu, HI 96850-5000
Phone: (808) 792-9400 Fax: (808) 792-9580

In Reply Refer To: 05/16/2025 19:50:08 UTC
Project Code: 2025-0098083
Project Name: Mākena Mauka

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened and endangered species, as well as designated critical habitat that may occur within the boundary of your proposed project and that may be affected by project related actions. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Please contact the Service's Pacific Islands Fish and Wildlife Office (PIFWO) at 808-792-9400 if you have any questions regarding your IPaC species list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may adversely affect threatened and endangered species and/or designated critical habitat.

Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a Biological

Evaluation, similar to a Biological Assessment, be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment or Biological Evaluation are described at 50 CFR 402.12.

Due to the significant number of listed species found on each island within PIFWO's regulatory jurisdiction, and the difficulty in accurately mapping ranges for species that we have limited information about, your species list may include more species than if you obtained the list directly from a Service biologist. We recommend you use the species links in IPaC to view the life history, habitat descriptions, and recommended avoidance and minimization measures to assist with your initial determination of whether the species or its habitat may occur within your project area. If appropriate habitat is present for a listed species, we recommend surveys be conducted to determine whether the species is also present. If no surveys are conducted, we err on the side of the species, by regulation, and assume the habitat is occupied. Updated avoidance and minimization measures for plants and animals, best management practices for work in or near aquatic environments, and invasive species biosecurity protocols can be found on the PIFWO website at: https://www.fws.gov/office/pacific-islands-fish-and-wildlife/library.

If a Federal agency determines, based on the Biological Assessment or Biological Evaluation, that a listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: http://www.fws.gov/endangered/esa-library/index.

Non-federal entities can also use the IPaC generated species list to develop Habitat Conservation Plans (HCP) in accordance with section 10(a)(1)(B) of the Act. We recommend HCP applicants coordinate with the Service early during the HCP development process. For additional information on HCPs, the Habitat Conservation Planning handbook can be found at https://www.fws.gov/sites/default/files/documents/habitat-conservation-planning-handbook-entire.pdf.

Please be aware that wind energy projects should follow the Service’s wind energy guidelines (http://www.fws.gov/windenergy) for minimizing impacts to migratory birds. Listed birds and the Hawaiian hoary bat may also be affected by wind energy development and we recommend development of a Habitat Conservation Plan for those species, as described above. Guidance for minimizing impacts to migratory birds for projects including communications towers can be found at:

- http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers
- http://www.towerkill.com
- http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation actions that benefit threatened and endangered species into their project planning to further the purposes of the Act in accordance with section 7(a)(1). Please include the Consultation Tracking Number associated with your IPaC species list in any

request for consultation or correspondence about your project that you submit to our office. Please feel free to contact us at PIFWO_admin@fws.gov or 808-792-9400 if you need more current information or assistance regarding the potential impacts to federally listed species and federally designated critical habitat.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Pacific Islands Fish And Wildlife Office
300 Ala Moana Boulevard, Box 50088
Honolulu, HI 96850-5000
(808) 792-9400

PROJECT SUMMARY

Project Code: 2025-0098083
Project Name: Mākena Mauka
Project Type: Residential Construction
Project Description: The Applicant proposes the development of Mākena Mauka, a low-density master planned residential community within the Makena area of South Maui. Mākena Mauka will offer market rate housing/lots and residential workforce housing as well as related amenities – including renovation of the South Golf Course.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@20.6446725,-156.43628113632994,14z



Counties: Maui County, Hawaii

ENDANGERED SPECIES ACT SPECIES

There is a total of 34 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Hawaiian Hoary Bat *Lasiurus cinereus semotus*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/770
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/WP3XP3BWPZHNJCDXEAPSVTIM5I/documents/generated/6477.pdf

BIRDS

NAME	STATUS
Band-rumped Storm-petrel *Hydrobates castro*	Endangered

Population: USA (HI)
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/1226
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/WP3XP3BWPZHNJCDXEAPSVTIM5I/documents/generated/6939.pdf

Hawaiian Coot (alae Ke`oke`o) *Fulica alai* — Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/7233
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/WP3XP3BWPZHNJCDXEAPSVTIM5I/documents/generated/6934.pdf

Hawaiian Duck *Anas wyvilliana* — Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/7712
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/WP3XP3BWPZHNJCDXEAPSVTIM5I/documents/generated/6934.pdf

Hawaiian Goose *Branta (=Nesochen) sandvicensis* — Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/1627
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/WP3XP3BWPZHNJCDXEAPSVTIM5I/documents/generated/6925.pdf

Hawaiian Petrel *Pterodroma sandwichensis* — Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/6746
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/WP3XP3BWPZHNJCDXEAPSVTIM5I/documents/generated/6939.pdf

Hawaiian Stilt *Himantopus mexicanus knudseni* — Endangered

No critical habitat has been designated for this species.

NAME STATUS

Species profile: https://ecos.fws.gov/ecp/species/2082
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/WP3XP3BWPZHNJCDXEAPSVTIM5I/documents/generated/6934.pdf

Newell"s Shearwater *Puffinus newelli* Threatened
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/2048
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/WP3XP3BWPZHNJCDXEAPSVTIM5I/documents/generated/6939.pdf

REPTILES

NAME STATUS

Green Sea Turtle *Chelonia mydas* Threatened
Population: Central North Pacific DPS
There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/6199
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/WP3XP3BWPZHNJCDXEAPSVTIM5I/documents/generated/6929.pdf

Hawksbill Sea Turtle *Eretmochelys imbricata* Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/3656

INSECTS

NAME STATUS

Blackburn's Sphinx Moth *Manduca blackburni* Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/4528
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/WP3XP3BWPZHNJCDXEAPSVTIM5I/documents/generated/6926.pdf

FLOWERING PLANTS

NAME STATUS

(=native Yellow Hibiscus) Ma`o Hau Hele *Hibiscus brackenridgei* Endangered
There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/4075

`aiea *Nothocestrum latifolium* Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/1061

NAME	STATUS
`awikiwiki *Canavalia pubescens* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7908	Endangered
`ena`ena *Pseudognaphalium sandwicensium var. molokaiense* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5993	Endangered
Awiwi *Schenkia sebaeoides* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7103	Endangered
Bonamia menziesii There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2503	Endangered
Carter's Panicgrass *Panicum fauriei var. carteri* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5578	Endangered
Dwarf Naupaka *Scaevola coriacea* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4669	Endangered
Gouania hillebrandii There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3464	Endangered
Honohono *Haplostachys haplostachya* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5815	Endangered
Ihi *Portulaca villosa* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4886	Endangered
Ko`oko`olau *Bidens micrantha ssp. kalealaha* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7697	Endangered
Ko`oloa`ula *Abutilon menziesii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3268	Endangered
Kulu`i *Nototrichium humile* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1001	Endangered
Lanai Sandalwood (=`iliahi) *Santalum haleakalae var. lanaiense* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3282	Endangered
Nehe *Melanthera kamolensis*	Endangered

NAME STATUS

There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/3476

Ohai *Sesbania tomentosa* Endangered
There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/8453
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/WP3XP3BWPZHNJCDXEAPSVTIM5I/documents/generated/7050.pdf

Popolo *Solanum nelsonii* Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/2281
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/WP3XP3BWPZHNJCDXEAPSVTIM5I/documents/generated/7050.pdf

Round-leaved Chaff-flower *Achyranthes splendens var. rotundata* Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/4709

Spermolepis hawaiiensis Endangered
There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/1670

Tetramolopium arenarium Endangered
There is **proposed** critical habitat for this species.
Species profile: https://ecos.fws.gov/ecp/species/1655

Uhiuhi *Mezoneuron kavaiense* Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/7129

Vigna o-wahuensis Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/8445

CRITICAL HABITATS

There are 17 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME STATUS

(=native Yellow Hibiscus) Ma`o Hau Hele *Hibiscus brackenridgei* Final
https://ecos.fws.gov/ecp/species/4075#crithab

`awikiwiki *Canavalia pubescens* Final
https://ecos.fws.gov/ecp/species/7908#crithab

A`e *Zanthoxylum hawaiiense* Final

NAME STATUS

For information on why this critical habitat appears for your project, even though A`e is not on the list of potentially affected species at this location, contact the local field office.
https://ecos.fws.gov/ecp/species/4645#crithab

Alani *Melicope mucronulata* Final
For information on why this critical habitat appears for your project, even though Alani is not on the list of potentially affected species at this location, contact the local field office.
https://ecos.fws.gov/ecp/species/706#crithab

Bonamia menziesii Final
https://ecos.fws.gov/ecp/species/2503#crithab

Kamanomano *Cenchrus agrimonioides* Final
For information on why this critical habitat appears for your project, even though Kamanomano is not on the list of potentially affected species at this location, contact the local field office.
https://ecos.fws.gov/ecp/species/2928#crithab

Kauila *Colubrina oppositifolia* Final
For information on why this critical habitat appears for your project, even though Kauila is not on the list of potentially affected species at this location, contact the local field office.
https://ecos.fws.gov/ecp/species/850#crithab

Ko`oko`olau *Bidens micrantha ssp. kalealaha* Final
https://ecos.fws.gov/ecp/species/7697#crithab

Kulu`i *Nototrichium humile* Final
https://ecos.fws.gov/ecp/species/1001#crithab

Lanai Sandalwood (=`iliahi) *Santalum haleakalae var. lanaiense* Final
https://ecos.fws.gov/ecp/species/3282#crithab

Mehamehame *Flueggea neowawraea* Final
For information on why this critical habitat appears for your project, even though Mehamehame is not on the list of potentially affected species at this location, contact the local field office.
https://ecos.fws.gov/ecp/species/109#crithab

Nehe *Melanthera kamolensis* Final
https://ecos.fws.gov/ecp/species/3476#crithab

Neraudia sericea Final
For information on why this critical habitat appears for your project, even though Neraudia sericea is not on the list of potentially affected species at this location, contact the local field office.
https://ecos.fws.gov/ecp/species/2237#crithab

Ohai *Sesbania tomentosa* Final
https://ecos.fws.gov/ecp/species/8453#crithab

Pauoa *Ctenitis squamigera* Final
For information on why this critical habitat appears for your project, even though Pauoa is not on the list of potentially affected species at this location, contact the local field office.
https://ecos.fws.gov/ecp/species/289#crithab

Popolo Ku Mai *Solanum incompletum* Final

NAME	STATUS
For information on why this critical habitat appears for your project, even though Popolo Ku Mai is not on the list of potentially affected species at this location, contact the local field office. https://ecos.fws.gov/ecp/species/3199#crithab	
Spermolepis hawaiiensis https://ecos.fws.gov/ecp/species/1670#crithab	Final

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

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1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

BALD & GOLDEN EAGLES INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service). The incidental take of migratory birds is the injury or death of birds that results from, but is not the purpose, of an activity. The Service interprets the MBTA to prohibit incidental take.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

MIGRATORY BIRD INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- R4SBC

ESTUARINE AND MARINE WETLAND

- M2RS1N

ESTUARINE AND MARINE DEEPWATER

- M1UBL

IPAC USER CONTACT INFORMATION

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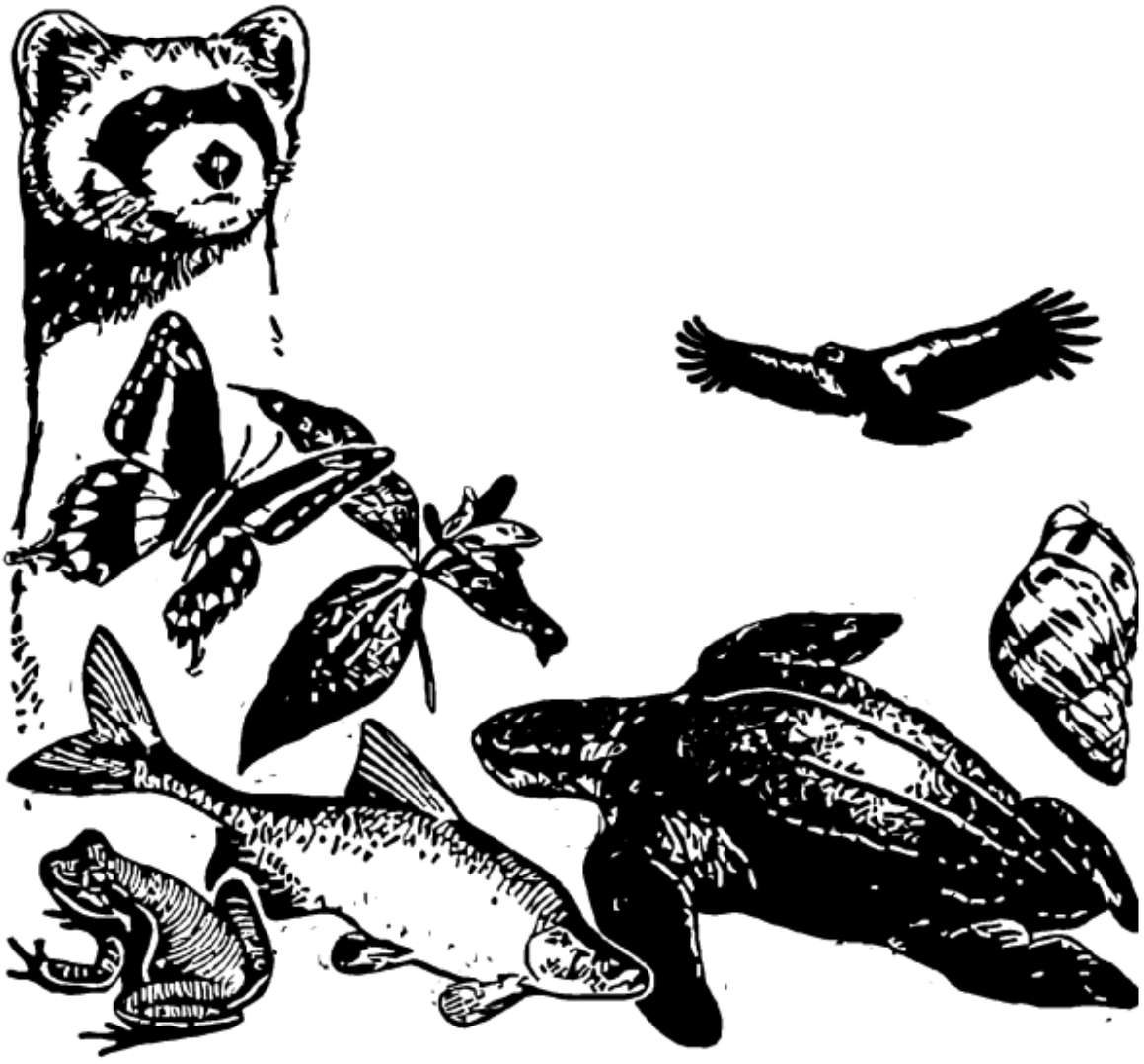
U.S. Fish & Wildlife Service

Hawaiian hoary bat

Hawaiian Hoary Bat

Generated September 12, 2025 12:27 AM UTC, IPaC v6.128.15-rc1



IPaC - Information for Planning and Consultation (https://ipac.ecosphere.fws.gov/): A project planning tool to help streamline the U.S. Fish and Wildlife Service environmental review process.

Hawaiian hoary bat (*Lasiurus cinereus semotus*): The Hawaiian hoary bat roosts in both exotic and native woody vegetation across all islands and will leave young unattended in trees and shrubs when they forage. If trees or shrubs 15 feet or taller are cleared during the pupping season, there is a risk that young bats could inadvertently be harmed or killed since they are too young to fly or may not move away. Additionally, Hawaiian hoary bats forage for insects from as low as 3 feet to higher than 500 feet above the ground and can become entangled in barbed wire used for fencing.

To avoid and minimize impacts to the endangered Hawaiian hoary bat we recommend you incorporate the following applicable measures into your project description:

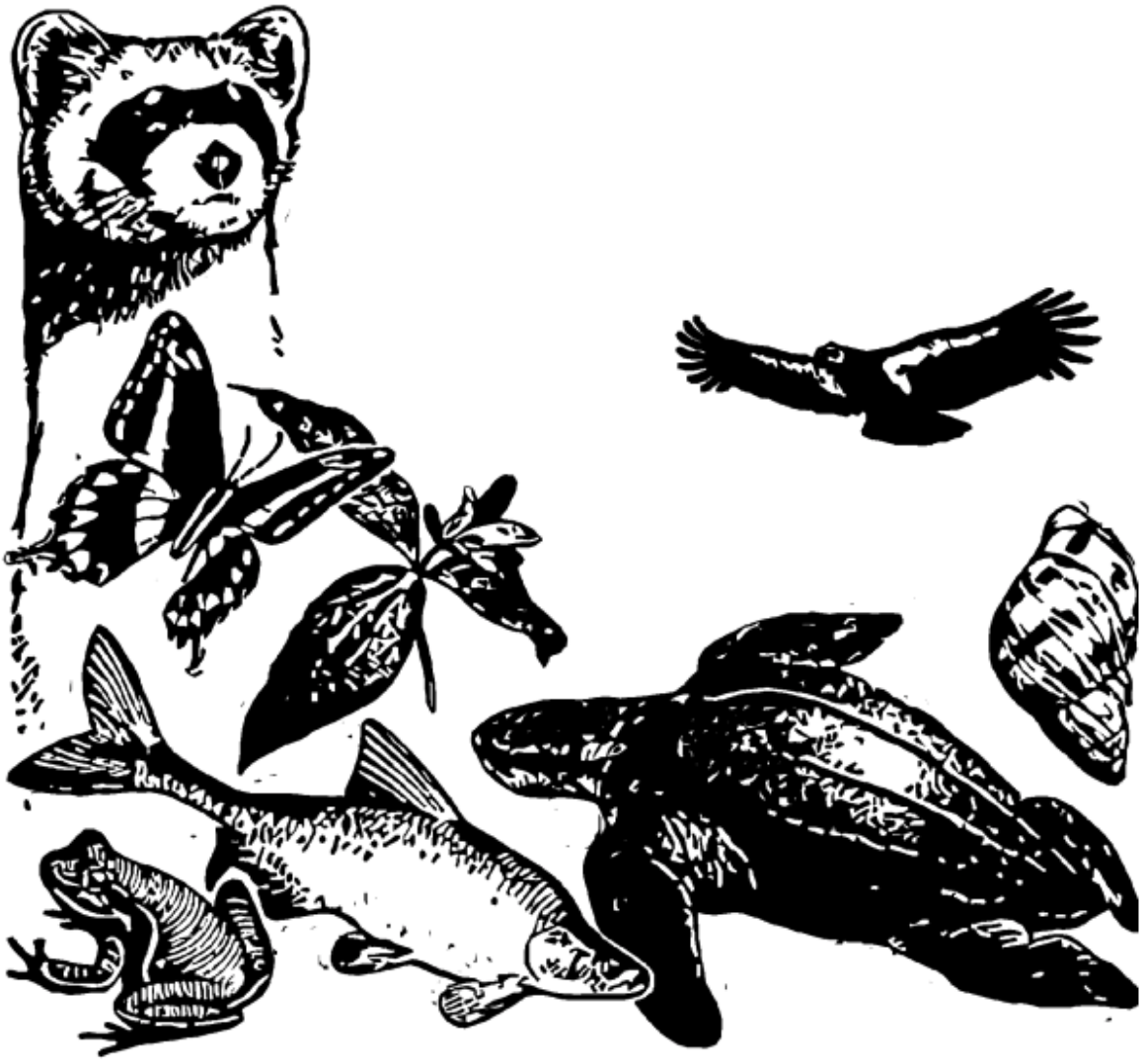
- Do not disturb, remove, or trim woody plants greater than 15 feet tall during the bat birthing and pup rearing season (June 1 through September 15).
- Do not use barbed wire for fencing.

U.S. Fish & Wildlife Service

Hawaiian seabirds

Hawaiian Petrel and 2 more species

Generated September 05, 2025 10:29 PM UTC, IPaC v6.128.15-rc1



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General Project Design Guidelines - Hawaiian Petrel and 2 more species

Published by Pacific Islands Fish And Wildlife Office - Publication Date: February 1, 2022 for the following species included in your project

- Hawaiian Petrel *Pterodroma sandwichensis*
- Newell"s Shearwater *Puffinus newelli*
- Band-rumped Storm-petrel *Hydrobates castro*

Endangered Hawaiian petrel (*Pterodroma sandwichensis*), Threatened Newell's shearwater (*Puffinus auricularis newelli*), and Endangered Hawaii Distinct Population Segment of the band-rumped storm-petrel (*Oceanodroma castro*):
Hawaiian seabirds may traverse the project area at night during the breeding, nesting and fledging seasons (March 1 to December 15). Outdoor lighting could result in seabird disorientation, fallout, and injury or mortality. Seabirds are attracted to lights and after circling the lights they may become exhausted and collide with nearby wires, buildings, or other structures or they may land on the ground. Downed seabirds are subject to increased mortality due to collision with automobiles, starvation, and predation by dogs, cats, and other predators. Young birds (fledglings) traversing the project area between September 15 and December 15, in their first flights from their mountain nests to the sea, are particularly vulnerable to light attraction.

To avoid and minimize potential project impacts to seabirds we recommend you incorporate the following measures into your project description:

- Fully shield all outdoor lights so the bulb can only be seen from below.
- Install automatic motion sensor switches and controls on all outdoor lights or turn off lights when human activity is not occurring in the lighted area.
- Avoid nighttime construction during the seabird fledging period, September 15 through December 15.

Listed seabirds have been documented colliding with communication towers, particularly in areas of high seabird passage rate. In general, self-supporting monopoles are the least likely to result in collisions, whereas lattice towers, particularly those that rely on guy-wires, have a greater risk.

To avoid and minimize the likelihood that towers will result in collisions by listed seabirds we recommend you incorporate the following measures into your project description:

- The profile of the tower should be as small as possible, minimize the extent of the tower that protrudes above the surrounding vegetation layer, and avoid the use of guywires.
- If the top of the tower must be lit to comply with Federal Aviation Administration regulations, use a flashing red light verses a steady-beam red or white light.
- If possible, co-locate with existing towers or facilities.

Seabirds have been known to collide with fences, powerlines, and other structures near nesting colonies. To avoid and minimize the likelihood of collision we recommend you incorporate the following measures into your project description:

- Where fences extend above vegetation, integrate three strands of polytape into the fence to increase visibility.
- For powerlines, guywires and other cables, minimize exposure above vegetation height and vertical profile.

U.S. Fish & Wildlife Service

Hawaiian waterbirds

Hawaiian Duck and 3 more species

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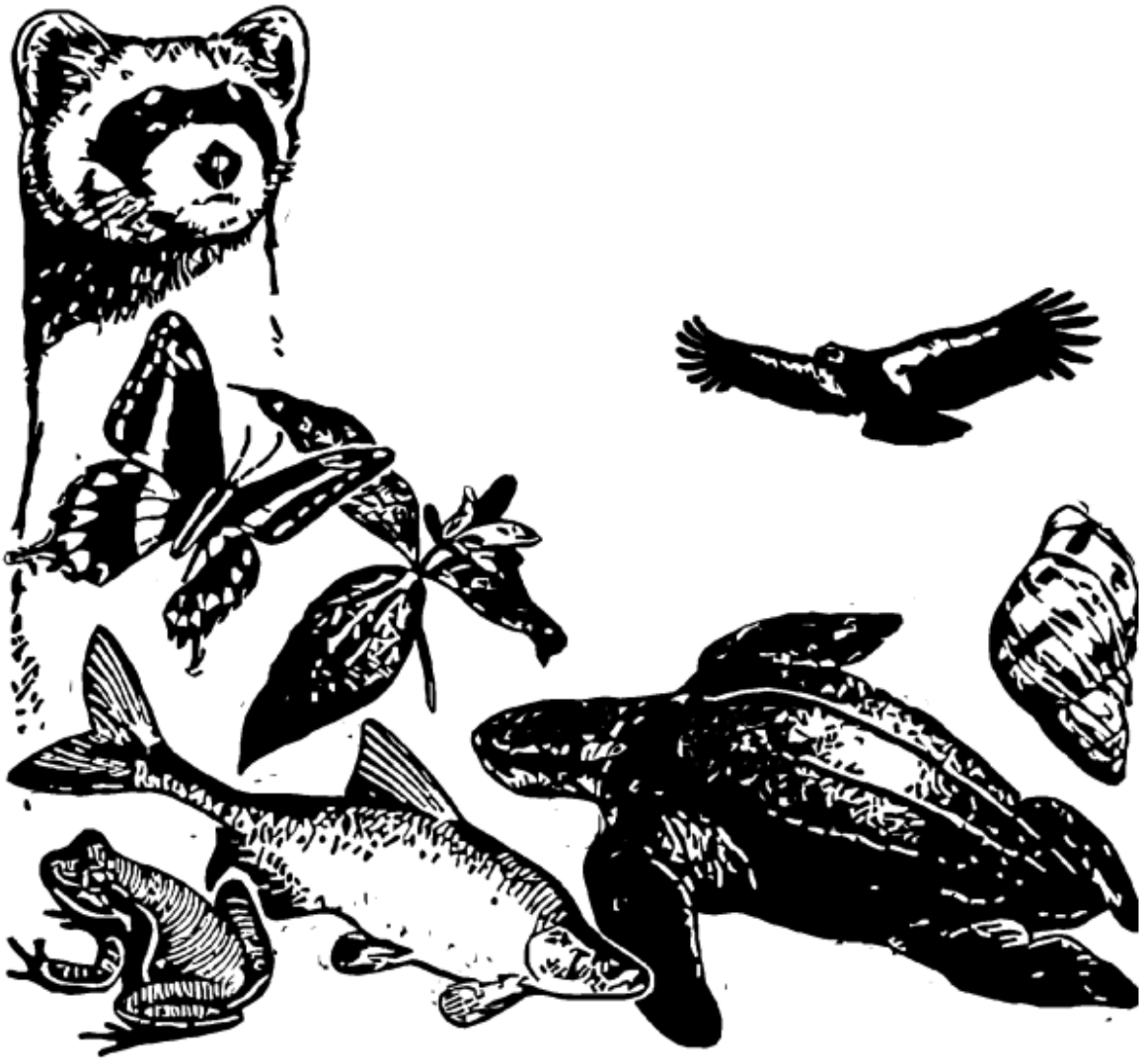


IPaC - Information for Planning and Consultation (https://ipac.ecosphere.fws.gov/): A project planning tool to help streamline the U.S. Fish and Wildlife Service environmental review process.

General Project Design Guidelines - Hawaiian Duck and 3 more species

Published by Pacific Islands Fish And Wildlife Office - Publication Date: February 1, 2022 for the following species included in your project

- Hawaiian Duck *Anas wyvilliana*
- Hawaiian Common Gallinule *Gallinula galeata sandvicensis*
- Hawaiian Stilt *Himantopus mexicanus knudseni*
- Hawaiian Coot (alae Ke`oke`o) *Fulica alai*

Hawaiian waterbirds (Hawaiian stilt, *Himantopus mexicanus knudseni*; Hawaiian coot, *Fulica alai*; Hawaiian common gallinule, *Gallinula galeata sandvicensis*; Hawaiian duck, *Anas wyvilliana*):
Listed Hawaiian waterbirds are found in fresh and brackish-water marshes and natural or man-made ponds. Hawaiian stilts may also be found wherever ephemeral or persistent standing water may occur. Threats to these species include non-native predators, habitat loss, and habitat degradation. Hawaiian ducks are also subject to threats from hybridization with introduced mallards.

The creation of standing or open water may result in the attraction of Hawaiian waterbirds to a site (creative nuisance or habitat sink). In particular, the Hawaiian stilt is known to nest in sub-optimal locations (e.g. any ponding water), if water is present. Hawaiian waterbirds attracted to sub-optimal habitat may suffer adverse impacts, such as predation and reduced reproductive success, and thus the project may create an attractive nuisance. Therefore, we recommend you work with our office during project planning so that we may assist you in developing measures to avoid impacts to listed species (e.g., fencing, vegetation control, predator management).

To avoid and minimize potential project impacts to Hawaiian waterbirds we recommend you incorporate the following applicable measures into your project description:

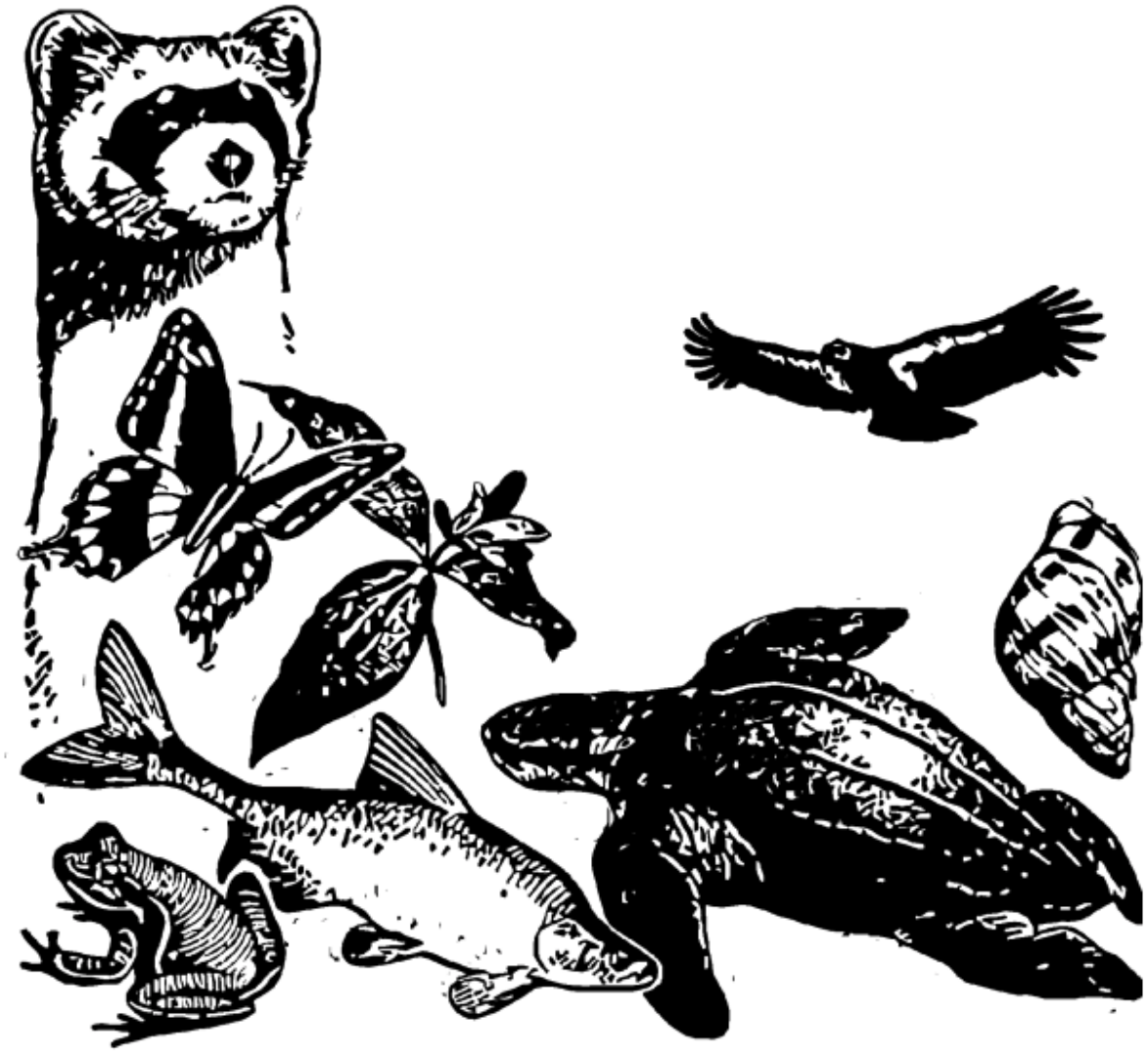
- In areas where waterbirds are known to be present, post and enforce reduced speed limits, and inform project personnel and contractors about the presence of endangered species on-site.
- Incorporate the Service's Best Management Practices for Work in Aquatic Environments into the project design.
- Have a biological monitor that is familiar with the species' biology conduct Hawaiian waterbird nest surveys, where appropriate habitat occurs within the vicinity of the proposed project site, prior to project initiation. Repeat surveys again within 3 days of project initiation and after any subsequent delay of work of 3 or more days (during which the birds may attempt to nest). If a nest or active brood is found:
    - Contact the Service within 48 hours for further guidance.
    - Establish and maintain a 100-foot buffer around all active nests and/or broods until the chicks/ducklings have fledged. Do not conduct potentially disruptive activities or habitat alteration within this buffer.
    - Have a biological monitor that is familiar with the species' biology present on the project site during all construction or earth moving activities until the chicks/ducklings fledge to ensure that Hawaiian waterbirds and nests are not adversely impacted.

U.S. Fish & Wildlife Service

Hawaiian goose

Hawaiian Goose

Generated September 05, 2025 10:31 PM UTC, IPaC v6.128.15-rc1



IPaC - Information for Planning and Consultation (https://ipac.ecosphere.fws.gov/): A project planning tool to help streamline the U.S. Fish and Wildlife Service environmental review process.

Hawaiian goose (nene), (*Branta (Nesochen) sandvicensis*): Nene are found on the islands of Hawaii, Maui, Molokai, and Kauai. They are observed in a variety of habitats, but prefer open areas, such as pastures, golf courses, wetlands, natural grasslands and shrublands, and lava flows. Threats to the species include introduced mammalian and avian predators, wind facilities, and vehicle strikes.

To avoid and minimize potential project impacts to nene we recommend you incorporate the following measures into your project description:

- Do not approach, feed, or disturb nene.
- If nene are observed loafing or foraging within the project area during the breeding season (September through April), have a biologist familiar with nene nesting behavior survey for nests in and around the project area prior to the resumption of any work. Repeat surveys after any subsequent delay of work of 3 or more days (during which the birds may attempt to nest).
- Cease all work immediately and contact the Service for further guidance if a nest is discovered within a radius of 150 feet of proposed project, or a previously undiscovered nest is found within the 150-foot radius after work begins.
- In areas where nene are known to be present, post and implement reduced speed limits, and inform project personnel and contractors about the presence of endangered species on-site.

nene 4(d) rule: A 4(d) rule was established at the time the nene was downlisted to threatened status. Under the 4(d) rule, the following actions are not prohibited under the Act, provided the additional measures described in the downlisting rule are adhered to:

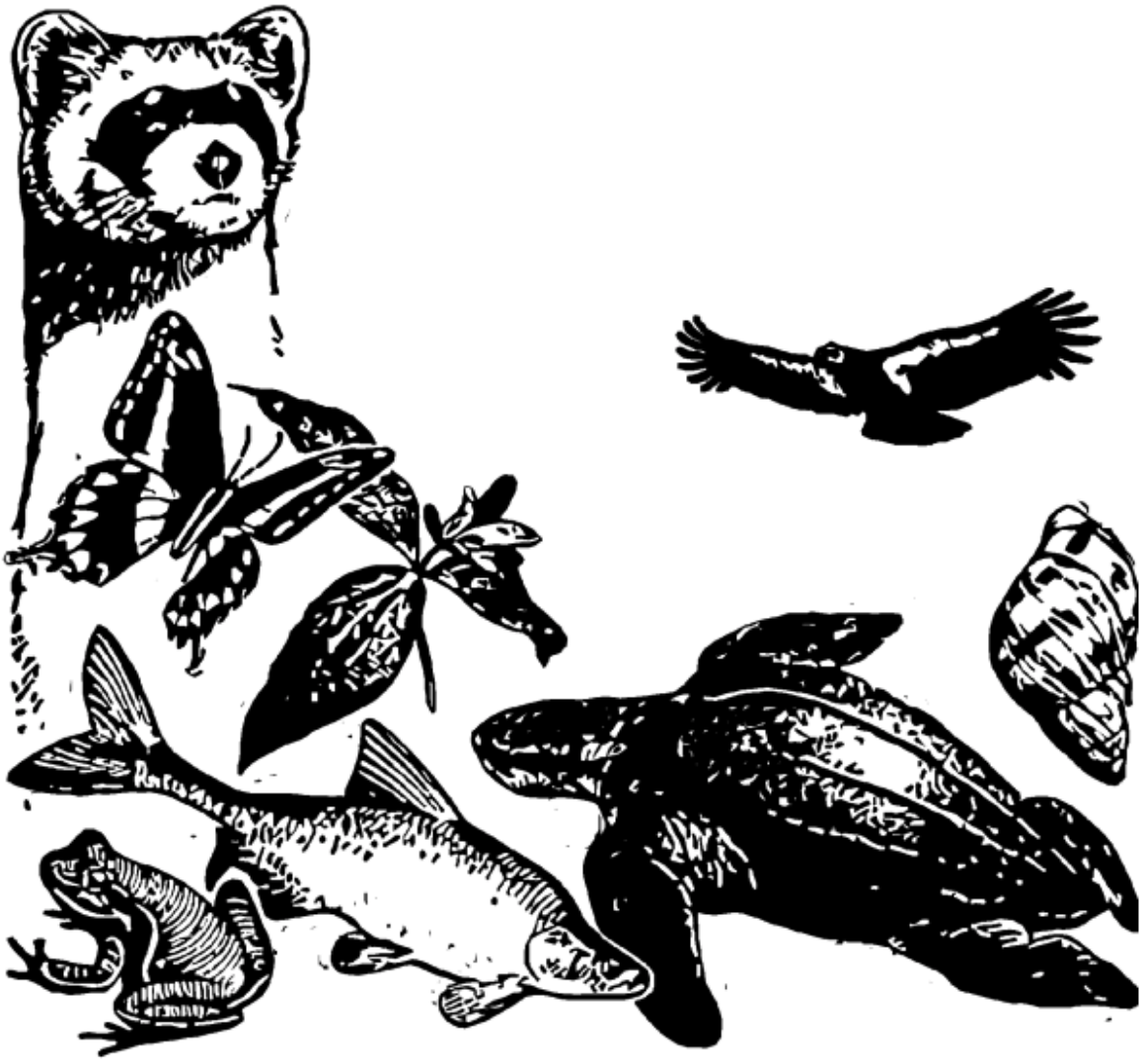
- Take by landowners, or their agents, conducting intentional harassment in the form of hazing or other deterrent measures not likely to cause direct injury or mortality, or nene surveys.
- Take that is incidental to conducting lawful control of introduced predators or habitat management activities for nene.
- Take by authorized law enforcement officers for the purpose of aiding or euthanizing sick, injured, or orphaned nene; disposing of dead specimens; and salvaging a dead specimen that may be used for scientific study.

U.S. Fish & Wildlife Service

Sea turtles

Green Sea Turtle and 2 more species

Generated September 05, 2025 10:23 PM UTC, IPaC v6.128.15-rc1



IPaC - Information for Planning and Consultation (https://ipac.ecosphere.fws.gov/): A project planning tool to help streamline the U.S. Fish and Wildlife Service environmental review process.

General Project Design Guidelines - Green Sea Turtle and 2 more species

Published by Pacific Islands Fish And Wildlife Office - Publication Date: February 1, 2022 for the following species included in your project

- Green Sea Turtle *Chelonia mydas*
- Green Sea Turtle *Chelonia mydas*
- Green Sea Turtle *Chelonia mydas*

Pacific sea turtles: Green sea turtles (*Chelonia mydas*) (Central North Pacific DPS - Hawaii and Johnston Atoll), (Central West Pacific DPS - Mariana Archipelago and Wake NWR) and (Central South Pacific DPS - American Samoa, Palmyra, Kingman, Howland, Baker and Jarvis NWR), and Hawksbill sea turtle (*Eretmochelys imbricata*):
The Service consults on sea turtles and their use of terrestrial habitats (beaches where nesting and/or basking is known to occur), whereas the National Marine Fisheries Service (NMFS) consults on sea turtles and their use of off-shore and open ocean habitats. We recommend that you consult with NMFS regarding the potential impacts from the proposed project to sea turtles in off-shore and open ocean habitats.

Green sea turtles may nest on any sandy beach area in the Pacific Islands. Hawksbill sea turtles exhibit a wide tolerance for nesting substrate (ranging from sandy beach to crushed coral) with nests typically placed under vegetation. Both species exhibit strong nesting site fidelity. Nesting occurs on Hawaiian beaches from May through September, peaking in June and July, with hatchlings emerging through November and December. Sea turtle nesting in the Western Pacific, Marianas, and South Pacific Islands can occur year-round; peaking in April and July. Nesting in American Samoa is from October to March).

Construction on, or in the vicinity of, beaches can result in sand and sediment compaction, sea turtle nest destruction, beach erosion, contaminant and nutrient runoff, and an increase in direct and ambient light pollution which may disorient hatchlings or deter nesting females. Off-road vehicle traffic may result in direct impacts to sea turtles and nests, and also contributes to habitat degradation through erosion and compaction.

Projects that alter the natural beach profile, such as nourishment and hardening, including the placement of seawalls, jetties, sandbags, and other structures, are known to reduce the suitability of on-shore habitat for sea turtles. These types of projects often result in sand compaction, erosion, and additional sedimentation in nearshore habitats, resulting in adverse effects to the ecological community and future sea turtle nests. The hardening of a shoreline increases the potential for erosion in adjacent areas, resulting in subsequent requests to install stabilization structures or conduct beach nourishment in adjacent areas. Given projected sea level rise estimates, the likelihood of increase in storm surge intensity, and other factors associated with climate change, we anticipate that beach erosion will continue and likely increase.

Whenever possible, projects should consider alternatives that avoid the modification or hardening of coastlines. Beach nourishment or beach hardening projects should evaluate the long-term effect to sea turtle nesting habitat and consider the cumulative effects.

To avoid and minimize project impacts to sea turtles and their nests we recommend you incorporate the following applicable measures into your project description:

- No vehicle use on, or modification of, the beach/dune environment during the sea turtle nesting or hatching season, or on beaches where sea turtles are known to bask.
- Do not remove or destroy native dune vegetation.
- Incorporate applicable Best Management Practices for Work in Aquatic Environments into the project design.

- Have a biologist familiar with sea turtles conduct a visual survey of the project site to ensure no basking sea turtles are present.
    - If a basking sea turtle is found within the project area, cease all mechanical or construction activities within 100 feet until the animal voluntarily leaves the area.
    - Cease all activities between the basking turtle and the ocean.
- Remove any project-related debris, trash, or equipment from the beach or dune if not actively being used.
- Do not stockpile project-related materials in the intertidal zone, reef flats, or stream channels.

Lighting: Optimal nesting habitat is a dark beach free of barriers that restrict sea turtle movement. Nesting turtles may be deterred from approaching or laying successful nests on lighted or disturbed beaches. They may become disoriented by artificial lighting, leading to exhaustion and placement of a nest in an inappropriate location (such as at or below the high tide line). Hatchlings that emerge from nests may also be disoriented by artificial lighting. Inland areas visible from the beach should be sufficiently dark to allow for successful navigation to the ocean.

To avoid and minimize project impacts to sea turtles from lighting we recommend incorporating the following applicable measures into your project description:

- Avoid nighttime work during the nesting and hatching season.
- Minimize the use of lighting and shield all project-related lights so the light is not visible from any beach.
    - If lights can’t be fully shielded or if headlights must be used, fully enclose the light source with light filtering tape or filters.
- Incorporate design measures into the construction or operation of buildings adjacent to the beach to reduce ambient outdoor lighting such as:
    - tinting or using automatic window shades for exterior windows that face the beach;
    - reducing the height of exterior lighting to below 3 feet and pointed downward or away from the beach; and
    - minimize light intensity to the lowest level feasible and, when possible, include timers and motion sensors.

U.S. Fish & Wildlife Service

Blackburn sphinx moth

Blackburn's Sphinx Moth

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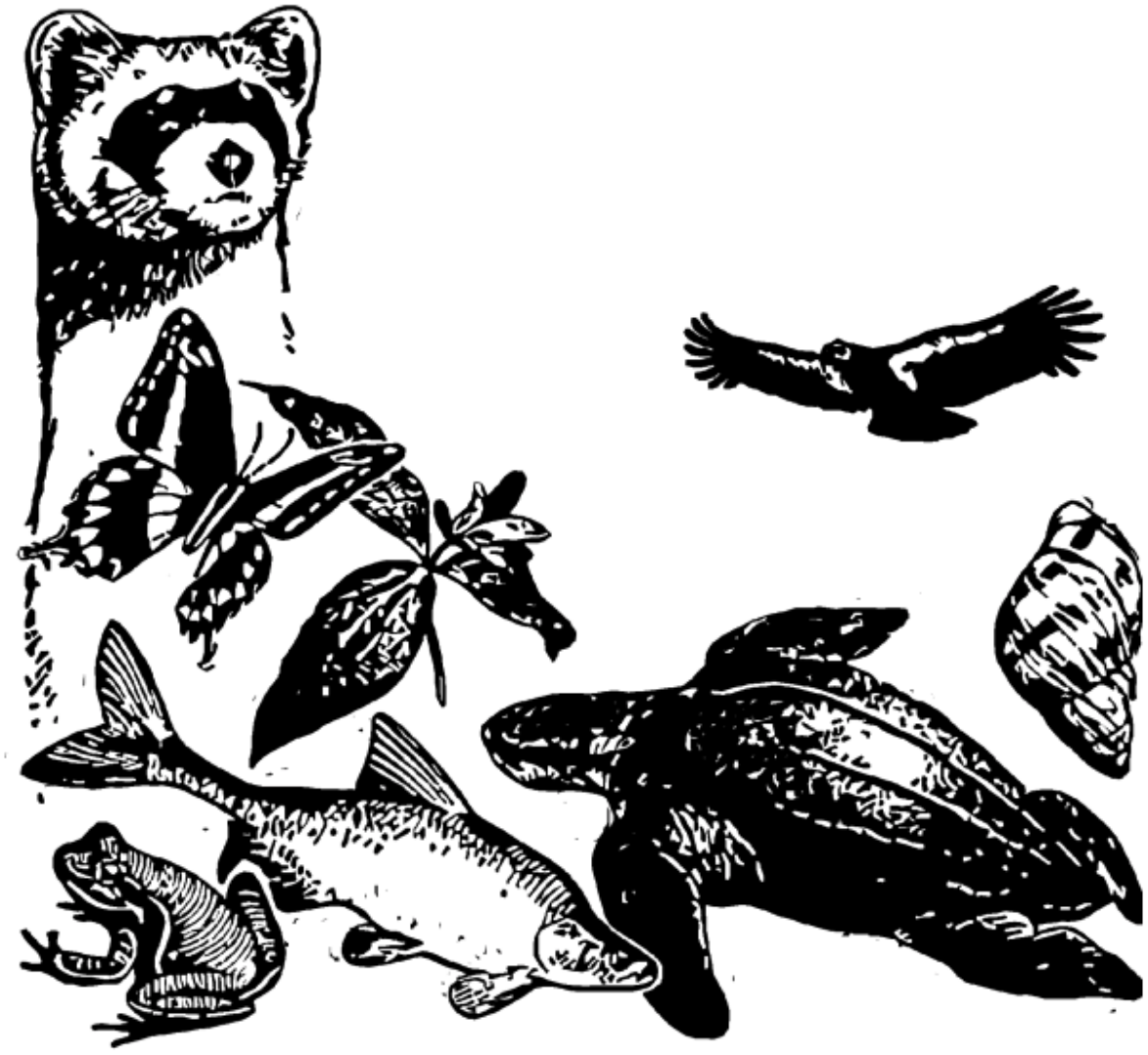

IPaC - Information for Planning and Consultation (https://ipac.ecosphere.fws.gov/): A project planning tool to help streamline the U.S. Fish and Wildlife Service environmental review process.

Blackburn’s sphinx moth (*Manduca blackburni*):
Adult Blackburn’s sphinx moths feed on nectar from native plants, including beach morning glory (*Ipomoea pes-caprae*), iliee (*Plumbago zeylanica*), and maiapilo (*Capparis sandwichiana*); larvae feed upon non-native tree tobacco (*Nicotiana glauca*) and native aiea (*Nothocestrum* sp.). To pupate, the larvae burrow into the soil and can remain in a state of torpor for a year or more before emerging from the soil. Soil disturbance can result in death of the pupae.

We offer the following survey recommendations to assess whether the Blackburn’s sphinx moth is within the project area:

- A biologist familiar with the species should survey areas of proposed activities for Blackburn’s sphinx moth and its larval host plants prior to work initiation.
    - Surveys should be conducted during the wettest portion of the year (usually November-April or several weeks after a significant rain) and within 4-6 weeks prior to construction.
    - Surveys should include searches for eggs, larvae, and signs of larval feeding (chewed stems, frass, or leaf damage).
    - If native aiea or tree tobacco over 3 feet tall, or adult Blackburn’s sphinx moths are found during surveys, do not disturb them and contact the Service for additional guidance to avoid take.

If no Blackburn’s sphinx moth, aiea, or tree tobacco are found during surveys, it is imperative that measures be taken to avoid attraction of Blackburn’s sphinx moth to the project location and prohibit tree tobacco from entering the site. Tree tobacco can grow greater than 3 feet tall in approximately 6 weeks. If it grows over 3 feet after surveys have been completed, the plants may become a host plant for Blackburn’s sphinx moth larvae. We therefore recommend that you:

- Remove any tree tobacco less than 3 feet tall.
- Monitor the site every 4-6 weeks for new tree tobacco growth before, during, and after the proposed ground-disturbing activity. This monitoring for can be completed by any staff, such as groundskeeper or regular maintenance crew, if they are provided with picture placards of tree tobacco at different life stages.

U.S. Fish & Wildlife Service

Avoidance, Minimization, and Conservation Measures for listed plants in the Pacific Islands

Ohai and 1 more species

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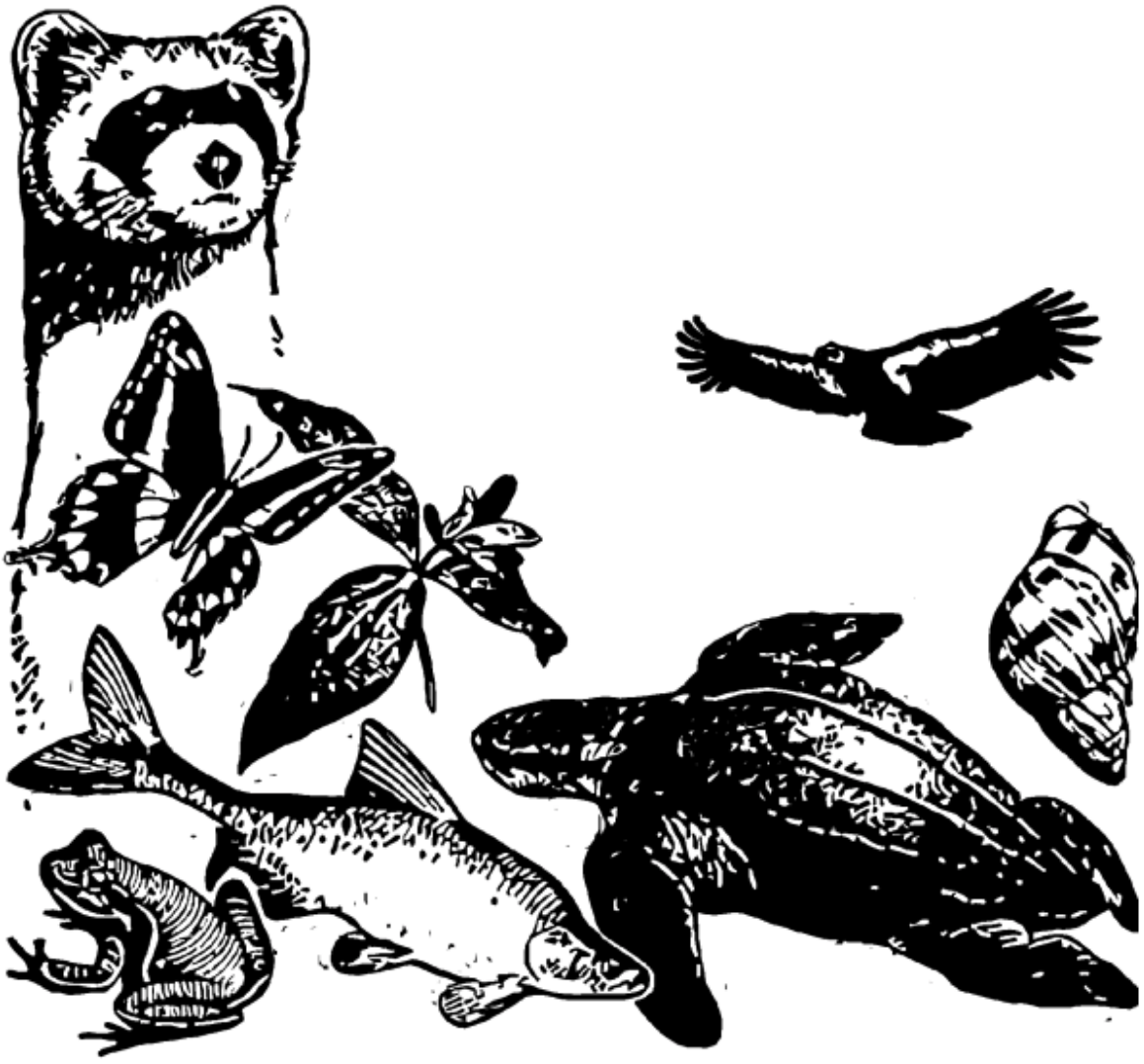

IPaC - Information for Planning and Consultation (https://ipac.ecosphere.fws.gov/): A project planning tool to help streamline the U.S. Fish and Wildlife Service environmental review process.

General Project Design Guidelines - Ohai and 1 more species

Published by Pacific Islands Fish And Wildlife Office - Publication Date: April 1, 2022 for the following species included in your project

- Ohai *Sesbania tomentosa*
- Popolo *Solanum nelsonii*

Avoidance, Minimization, and Conservation Measures for listed plants in the Pacific Islands

Project activities may affect listed plant species by causing physical damage to plant parts (roots, stems, flowers, fruits, seeds, etc.) as well as impacts to other life requisite features of their habitat which may result in reduction of germination, growth and/or reproduction. Cutting and removal of vegetation surrounding listed plants has the potential to alter microsite conditions (e.g., light, moisture, temperature), damaging or destroying the listed plants and also increasing the risk of invasion by nonnative plants which can result in higher incidence or intensity of fire. Activities such as grazing, use of construction equipment and vehicles, and increased human traffic (i.e. trails, visitation, monitoring), can cause ground disturbance, erosion, and/or soil compaction which decrease absorption of water and nutrients and damage plant root systems and may result in reduced growth and/or mortality of listed plants. Soil disturbance or removal has the potential to negatively impact the soil seed bank of listed plant species if such species are present or historically occurred in the project area.

In order to avoid or minimize potential adverse effects to listed plants that may occur on the proposed project site, we recommend minimizing disturbance outside of existing developed or otherwise modified areas. When disturbance outside existing developed or modified sites is proposed, conduct a botanical survey for listed plant species within the project action area, defined as the area where direct and indirect effects are likely to occur. Surveys should be conducted by a knowledgeable botanist with documented experience in identifying native Hawaiian and Pacific Islands plants, including listed plant species. Botanical surveys should optimally be conducted during the wettest part of the year (typically October to April) when plants and identifying features are more likely to be visible, especially in drier areas. If surveys are conducted outside of the wet season, the Service may assume plant presence.

The boundary of the area occupied by listed plants should be marked with flagging by the surveyor. To avoid or minimize potential adverse effects to listed plants, we recommend adherence to buffer distances for the activities in the **Table below**. Where disturbed areas do not need to be maintained as an open area, restore disturbed areas using native plants as appropriate for the location. Whenever possible we recommend using native plants for landscaping purposes. The following websites are good resources to use when choosing landscaping plants: Landscape Industry Council of Hawai‘i Native Plant Poster (http://hawaiiscape.wpengine.com/publications/), Native Hawaiian Plants for Landscaping, Conservation, and Reforestation (https://www.ctahr.hawaii.edu/oc/freepubs/pdf/of-30.pdf), and Best Native Plants for Landscapes (https://www.ctahr.hawaii.edu/oc/freepubs/pdf/OF-40.pdf).

If listed plants occur in a project area, the avoidance buffers are recommended to reduce direct and indirect impacts to listed plants from project activities. However, where project activities will occur within the recommended buffer distances, additional consultation is required. The impacts to the plants of concern within the buffer area may be reduced by placing temporary fencing or other barriers at the boundary of the disturbance, as far from the affected plants as practicable.

The above guidelines apply to areas outside of designated critical habitat. If project activities occur within designated critical habitat unit boundaries, additional consultation is required.

All activities, including site surveys, risk introducing nonnative species into project areas. Specific attention needs to be made to ensure that all equipment, personnel and supplies are properly checked and are free of contamination (weed seeds, organic matter, or other contaminants) before entering project areas. Quarantines and or management activities occurring on specific priority invasive species proximal to project areas need to be considered or adequately addressed. This information can be acquired by contacting local experts such as those on local invasive species committees (Kauai: https://www.kauaiisc.org/; Oahu: https://www.oahuisc.org/; Maui Nui: https://mauiinvasive.org/; and Hawaii: https://www.biisc.org/

Table 1. Recommended buffer distances to minimize and avoid potential adverse impacts to listed plants from activities listed below.

Action	Buffer Distance (feet (meters)) - Keep Project Activity This Far Away from Listed Plant	
	Grasses/Herbs/Shrubs and Terrestrial Orchids	Trees and Arboreal Orchids
Walking, hiking, surveys	3 ft (1 m)	3 ft (1 m)
Cutting and Removing Vegetation By Hand or Hand Tools (e.g., weeding)	3 ft (1 m)	3 ft (1 m)
Mechanical Removal of Individual Plants or Woody Vegetation (e.g., chainsaw, weed eater)	3 ft up to height of removed vegetation (whichever greater)	3 ft up to height of removed vegetation (whichever greater)
Removal of Vegetation with Heavy Equipment (e.g., bulldozer, tractor, "bush hog")	2x width equipment + height of vegetation	820 ft (250 m)

Use of Approved Herbicides (following label)	**Ground-based Spray Application; hand application (no wand applicator; spot treatment)**	10 ft (3 m)	Crown diameter
	Ground-based Spray Application; manual pump with wand, backpack	50 ft (15 m)	Crown diameter
	Ground-based Spray Application; vehicle-mounted tank sprayer	50 ft (15 m)	Crown diameter
	Aerial Spray (ball applicator)	250 ft (76 m)	250 ft (76 m)
	Aerial Application – herbicide ballistic technology (individual plant treatment)	100 ft (30 m)	Crown diameter
	Aerial Spray (boom)	Further consultation required	Further consultation required
Use of Insecticides (pollinators, seed dispersers)		Further consultation required	Further consultation required
Ground/Soil Disturbance/Outplanting/Fencing (Hand tools, e.g. shovel, `ō`ō; Small mechanized tools, e.g., auger)		20 ft (6 m)	2x crown diameter
Ground/Soil Disturbance (Heavy Equipment)		328 ft (100 m)	820 ft (250 m)
Surface Hardening/Soil compaction	**Trails (e.g., human, ungulates)**	20 ft (6 m)	2x crown diameter
	Roads/Utility Corridors, Buildings/Structures	328 ft (100 m)	820 ft (250 m)
Prescribed Burns		Further consultation required	Further consultation required
Farming/Ranching/Silviculture		820 ft (250 m)	820 ft (250 m)

Definitions (Wagner *et al*. 1999)

Crown: The leafy top of a tree.
Herb: A plant, either annual, biennial, or perennial, with the non-woody stems dying back to the ground at the end of the growing season.
Shrub: A perennial woody plant with usually several to numerous primary stems arising from or relatively near the ground.
Tree: A woody perennial that usually has a single trunk

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. 2012. Endangered and threatened wildlife and plants; endangered status for 23 species on Oahu and designation of critical habitat for 124 species; final rule. Federal Register 77: 57648–57862.

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Planning. Project Management. Sustainable Solutions.

VOLUME VII OF IX

Appendix P

Draft Environmental Impact Statement

MĀKENA MAUKA

(TMK Nos. (2)2-1-005:108, (2)2-1-006:036 and 057, (2)2-1-007:068, 092 and 093, (2)2-1-008:078, 079, 081, and 090, and (2)2-1-031:036(por.))

Prepared for:
AREG AC Makena Propco LLC

Accepting Authority:

Maui Planning Commission

December 2025

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VOLUME VII OF IX

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Draft Environmental Impact Statement

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Appendix P. Air Quality and Climate Change Report

AIR QUALITY AND CLIMATE CHANGE REPORT

APPENDIX P

MĀKENA MAUKA PROJECT

Air Quality and Climate Change Study

Prepared for:

AREG AC Makena Propco, LLC

Prepared by:

Terry A. Hayes Associates Inc.

June 2025

taha
environmental planners

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1.0 SUMMARY OF FINDINGS

Terry A. Hayes Associates Inc. (TAHA) has completed an Air Quality and Climate Change Study (Study) for the Mākena Mauka Project (proposed project). Key findings are listed below.

- The proposed project would generate temporary (e.g., construction equipment exhaust) and permanent (e.g., residential vehicle exhaust, utility use) greenhouse gas (GHG) emissions. Construction-related GHG emissions, which are quantified and disclosed below, would be temporary and not significant. The proposed project would implement the Leadership in Energy and Environmental Design (LEED) certification on all lands pursuant to the 2008 Change in Zoning (CIZ) conditions of approval, which would reduce the environmental footprint associated with potential impacts, enhance the local ecosystem, and better community well-being. Cumulatively, permanent emissions would be unavoidable but not significant because the proposed project would not interfere with the development of clean energy supply in Hawaii.

- The State of Hawaii is committed to renewable energy production, which does not generate GHG emissions. Hawaii has enacted a law that mandates that all of the State's electricity comes from renewable sources no later than 2045. The proposed project is anticipated to be fully built out by 2058. Project-related indirect emissions would decline as the State moves toward a fully renewable supply of energy.

- The proposed project would generate GHGs from shipping most construction materials to Maui. The global nature of present-day manufacturing makes calculating emissions associated with that process incredibly difficult. Additionally, the sources of materials needed for construction are unknown at this stage of the planning process and environmental approvals. Furthermore, the effects from the transport of construction materials to Maui are best evaluated in the context of port-related emissions and not on a project-by-project basis due to the fact the ships importing construction materials benefit numerous construction projects. Material shipping emissions are not included in this Study but are acknowledged as a necessary part of construction in Hawaii.

- The proposed project would generate temporary construction emissions of criteria air pollutants. The primary sources of pollutant emissions during construction activities would be exhaust from diesel-powered equipment and trucks. Construction emissions would be temporary and would cease upon completion of activities.

- Construction activities could generate fugitive dust, although it would be minimized by utilizing control measures. The proposed project will follow reasonable control measures included in the Hawaii Department of Health (DOH) Clean Air Branch Fugitive Dust Fact Sheet (April 2019) to reduce fugitive dust. Control measures include, but are not limited to, fugitive dust control plans, watering as necessary to maintain soils in a damp condition, limiting the amount of exposed areas through planning and timing of project phases, and covering temporarily exposed areas with mulch. Which control measures to implement is/are the responsibility of the owner, project manager, or operator of the site in response to the County of Maui's grading permit and National Pollutant Discharge Elimination System (NPDES) permit requirements from the Hawaii DOH. The site topography and surroundings, soil conditions, meteorological conditions, site activities, site equipment, and types of material processed must be considered. Generally, dry and windy conditions will require more control measures than rainy and calm periods.

- The proposed project would not result in adverse effects related to regional operational emissions. Vehicle exhaust associated with residential trips would be the primary source of direct emissions. The entirety of Maui is designated as attainment of the ambient air quality standards, and mobile source emissions from the proposed project vehicle trips would not have the potential to compromise the attainment designations by deteriorating air quality.

2.0 INTRODUCTION

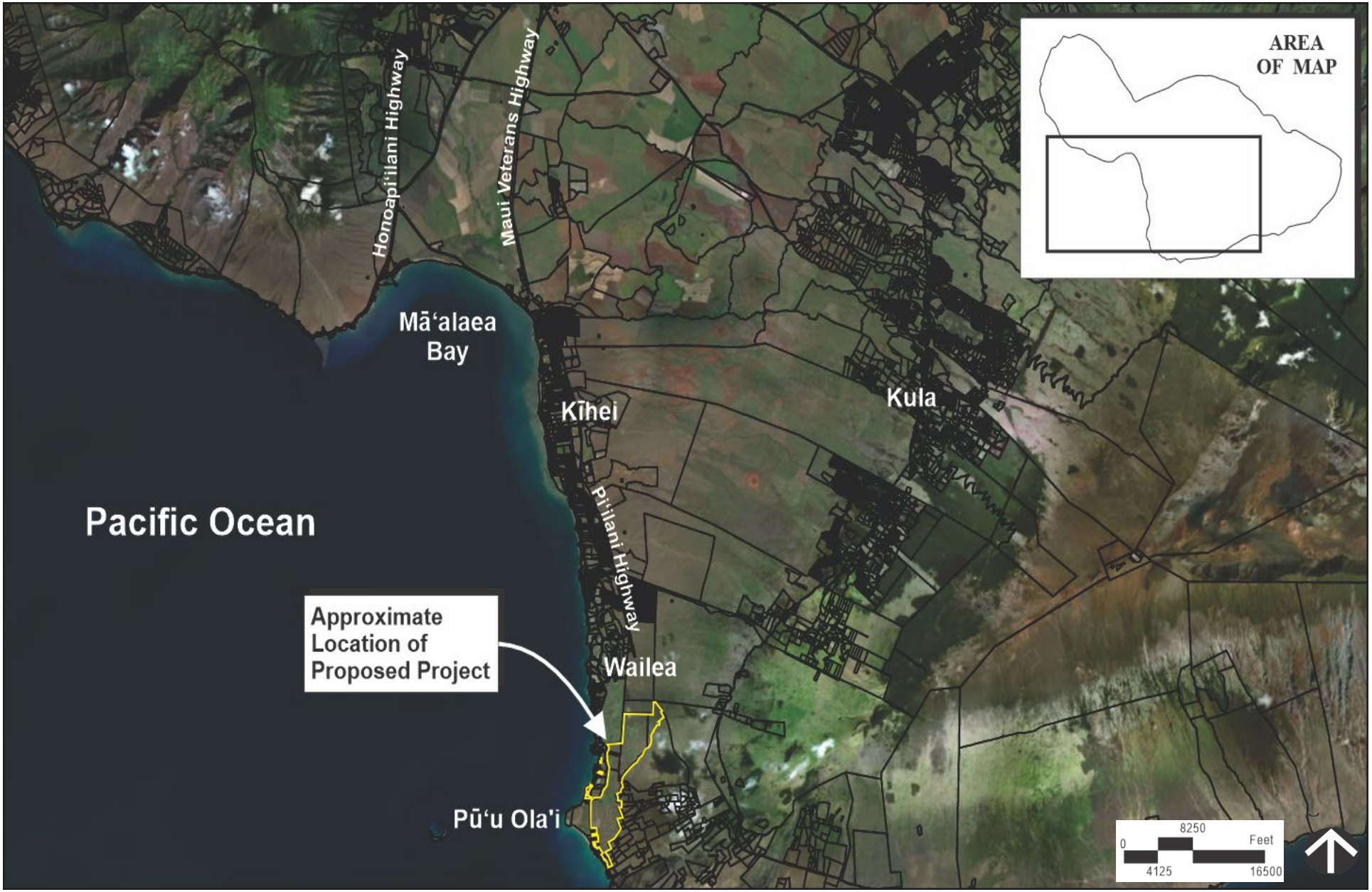
2.1 PURPOSE

The use of state or county lands or state or county funds, the use within a shoreline area, and any amendment to existing county general plans where the amendment would result in designations other than agriculture, conservation, or preservation requires preparation of an Environmental Impact Statement (EIS) pursuant to the Hawaii Administrative Rules (HAR) §343-5(a)(1); (e). This Study is intended to inform the EIS being prepared in accordance with the Hawaii Environmental Policy Act (HEPA). The purpose of the Study is to evaluate the potential for adverse air quality and GHG emission effects associated with implementation of the proposed project.

2.2 PROJECT DESCRIPTION

The proposed project is a low-density master planned residential community within the Makena area of South Maui. The regional location is shown in **Figure 2-1** and a conceptual land use plan is shown in **Figure 2-2**. The proposed project would offer market rate housing together with residential workforce housing with a mixture of single- and multi-family residential units all located mauka (mountain side, in this region this would be east side) of Makena Alanui Road (TMK (2)2-1-005:108, (2)2-1-006:036 and 057, (2)2-1-007:068, 092 and 093, (2)2-1-008:078, 079, 081, and 090, and (2)2-1-031:036(Por.)). A total of 652 residential units, inclusive of 195 single-family units and 457 multi-family units, are planned for phased development to be completed by the year 2057. Of the 652 residential units, 543 would be offered at market rate and 109 would qualify as residential workforce housing under Maui County Code Chapter 2.96.

The affordable housing is expected to be completed within the first 10 years of construction, with the remaining single- and multi-family homes being constructed equally over three 10-year periods (10, 20, and 30 years into the future). A total of 3,000 square feet of retail and 46,000 square feet of office space would also be developed in phases over the 30 years. The proposed project would incorporate the existing 18-hole Makena North Golf Course and the existing (to-be-renovated) 18-hole Makena South Golf Course, with improvements including a new clubhouse and practice range. The proposed project would include a community gathering place, hiking trails, programs to support connectivity, walking, bicycling, golf cart paths, beach parking areas for the public, areas reserved for conservation/open space, and areas reserved for public beach access. Improvements to existing roadways and intersections within the project area are anticipated as part of the proposed project. Additionally, all proposed buildings over 500 square feet would be LEED certified.



Source: Munekiyo Hiraga, 2024.

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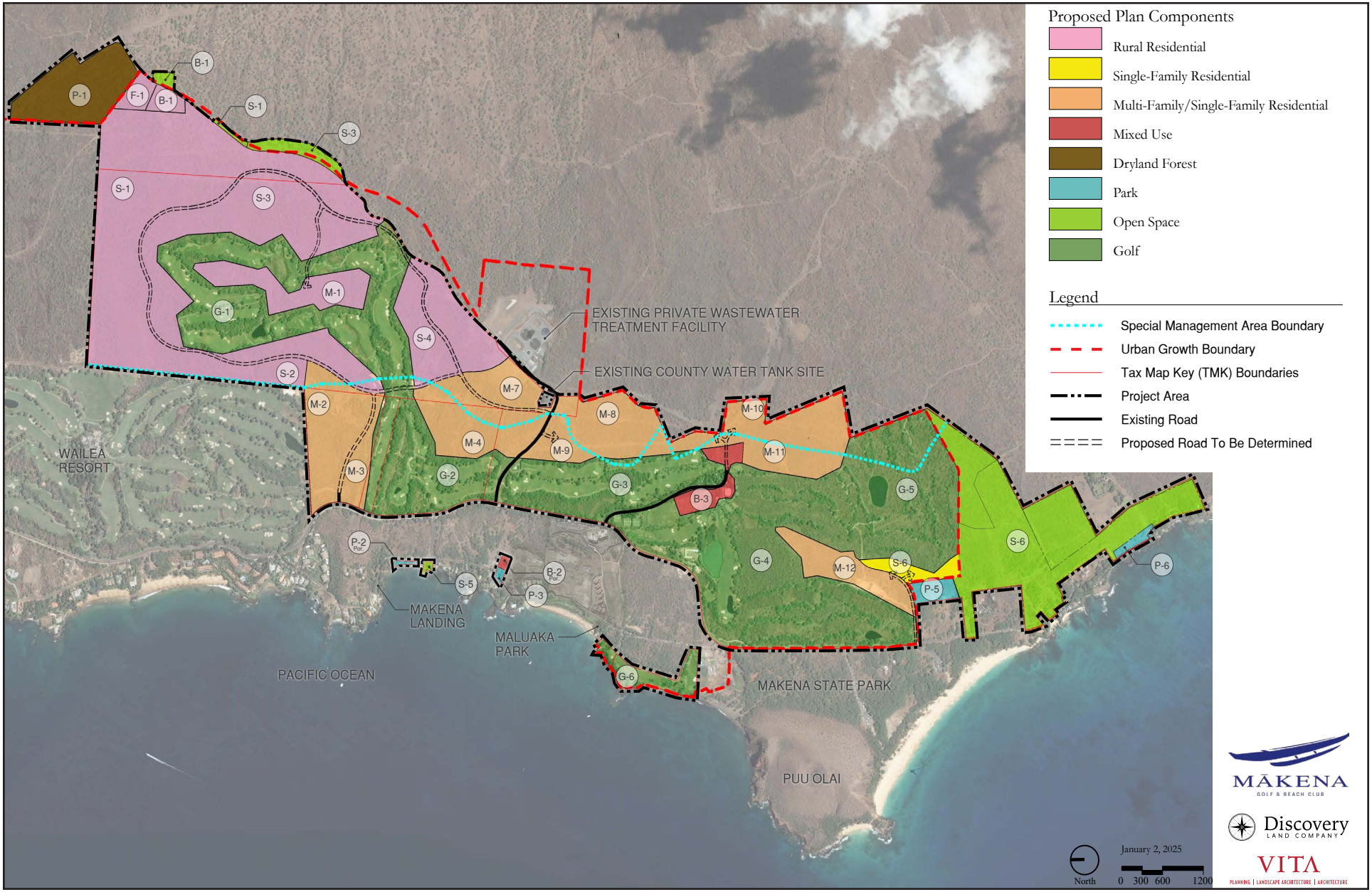
Makena Mauka Project
Air Quality and Climate Change Study

MAKENA GOLF & BEACH CLUB

FIGURE 2-1

REGIONAL LOCATION



Source: VITA, Inc., 2025.

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Makena Mauka Project
Air Quality and Climate Change Study

MAKENA GOLF & BEACH CLUB

FIGURE 2-2

SITE PLAN

3.0 TOPICAL BACKGROUND & REGULATORY FRAMEWORK

This section provides an overview of how ambient air quality is characterized and the applicable regulations that have been established to protect public health and the environment, as well as a discussion of GHG emissions, how they contribute to climate change, and the regulatory framework developed to reduce GHG emissions. According to the DOH, air pollution is a general term that refers to the presence in the outdoor air of substances in quantities and for durations which may endanger human health or welfare, plant or animal life, or property, or may reasonably interfere with the comfortable enjoyment of life and property.

Through extensive scientific research, specific chemical substances have been identified as air pollutants that are known to cause adverse health effects and degradation of environmental quality. Concentrations of the following pollutants in ambient air are regulated at the federal and state level to protect public health and the environment. A separate discussion of GHG emissions and climate change is provided subsequently.

3.1 AIR POLLUTANTS

This Study discusses pollutants from two perspectives: daily emissions and pollutant concentrations. “Emissions” refer to the quantity of pollutant released into the air, measured in pounds per day (ppd) or tons per year (tpy) in this Study. “Concentrations” refer to a way to describe how much of a pollutant is in the air. Concentration is usually shown as an amount, or mass, of pollutant per certain volume of air, measured in parts per million (ppm) for gaseous pollutants and micrograms per cubic meter ($\mu g/m^3$) for pollutants in the particulate phase in this Study.[1] Air pollutants are presented as criteria pollutants, GHGs, hazardous air pollutants (HAPs), and nuisance pollutants such as odors and dust.

Criteria Pollutants

Ozone (O_3). O_3 is the main constituent in photochemical air pollution. It is formed in the atmosphere by a chemical reaction of nitrogen oxides (NOx) and volatile organic compounds (VOCs) in the presence of sunlight. In the upper atmosphere, O_3 shields the earth from harmful ultraviolet radiation; however, at ground level, it can cause harmful effects in humans and plants.[2]

Nitrogen Dioxide (NO_2). NO_2 is a brownish, highly corrosive gas with a pungent odor. It is formed in the atmosphere from emissions of nitrogen oxides (NO_X). Sources of NO_X include electric utilities, industrial boilers, motor vehicle exhaust, and combustion of fossil fuels. NO_2 is also a component in the atmospheric reaction that produces ground-level ozone.[3]

Carbon Monoxide (CO). CO is a colorless, odorless, tasteless gas under atmospheric conditions. It is produced by the incomplete combustion of carbon fuels with the majority of emissions coming from transportation sources.[4] CO can be emitted by volcanoes. However, it is rarely abundant enough in volcanic gases to cause serious problems. Volcanic gases contain between 0.01 and two percent CO.[5]

---

[1]USEPA, *AirToxScreen Glossary of Terms*, 2023. https://www.epa.gov/AirToxScreen/airtoxscreen-glossary-terms. Accessed October 1, 2024.

[2]State of Hawaii, DOH, *Annual Summary 2020 Air Quality Data*, December 2021.

[3]I*bid*.

[4]I*bid*.

[5]University Corporation for Atmospheric Research, *Carbon Monoxide Fact Sheet*, 2017. https://scied.ucar.edu/learning-zone/air-quality/carbon-monoxide. Accessed October 1, 2024.

Sulfur Dioxide (SO_2). SO_2 is a colorless gas that easily combines with water vapor forming sulfuric acid. Emissions of SO_2 are largely from sources that burn fossil fuels such as coal and oil. In Hawaii, another possible major source of SO_2 emissions is from any active eruption of Kilauea Volcano on the Big Island.[6]

Particulate Matter. Particulate matter refers to a wide range of solid or liquid particles in the atmosphere, including smoke, dust, aerosols, and metallic oxides. Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. $PM_{2.5}$ includes a subgroup of finer particles that have an aerodynamic diameter of 2.5 micrometers or less. Some particulate matter, such as pollen, is naturally occurring. Particulate matter emissions in the Hawaiian Islands are typically caused by volcanic eruptions, combustion, factories, construction, grading, demolition, agricultural activities, and motor vehicles. Volcanic sources of particulate matter can be substantial in Hawaii depending on the activity and wind direction.[7] The United States Environmental Protection Agency (USEPA) Particulate Matter standards apply only to these fine particles.

Lead (Pb). Sources of lead emissions vary from one area to another. At the national level, major sources of lead in the air are ore and metals processing and piston-engine aircraft operating on leaded aviation fuel. Other sources are waste incinerators, utilities, and lead-acid battery manufacturers. The highest air concentrations of lead are usually found near lead smelters. As a result of USEPA's regulatory efforts including the removal of lead from motor vehicle gasoline, levels of lead in the air decreased by 98 percent between 1980 and 2014.[8]

Hazardous Air Pollutants (HAPs)

HAPs, also known as toxic air pollutants or air toxics, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. Examples of toxic air pollutants include benzene, which is found in gasoline; perchloroethylene, which is emitted from some dry-cleaning facilities; and methylene chloride, which is used as a solvent and paint stripper by a number of industries. Examples of other listed air toxics include dioxin, asbestos, toluene, and metals such as cadmium, mercury, chromium, and lead compounds.[9]

Nuisance Pollutants (Odors and Dust)

Other air quality issues of concern include nuisance impacts of odors and dust. Objectionable odors may be associated with a variety of pollutants. Common sources of odors include wastewater treatment plants, landfills, composting facilities, refineries, and chemical plants. Similarly, nuisance dust may be generated by a variety of sources including quarries, agriculture, grading, and construction. Odors rarely have direct health impacts, but they can be very unpleasant and can lead to anger and concern over possible health effects among the public.

[6]State of Hawaii, DOH, *Annual Summary 2020 Air Quality Data*, December 2021.

[7]U.S. Geological Survey, *Frequently Asked Questions About Volcanic Smog* (VOG). https://www.usgs.gov/observatories/hawaiian-volcano-observatory/frequently-asked-questions-about-volcanic-smog-vog. Accessed October 1, 2024.

[8]USEPA, *Basic Information About Lead Air Pollution*. https://www.epa.gov/lead-air-pollution/basic-information-about-lead-air-pollution#how. Accessed October 1, 2024.

[9]USEPA, *What are Hazardous Air Pollutants?*, https://www.epa.gov/haps/what-are-hazardous-air-pollutants. Accessed October 1, 2024.

3.2 AIR QUALITY REGULATORY FRAMEWORK

Federal Regulations

United States Environmental Protection Agency (USEPA). At the federal level, the USEPA has been charged with implementing national air quality programs. The USEPA's authority over air quality is drawn primarily from the Federal Clean Air Act (FCAA), which was enacted in 1963. The FCAA was amended in 1970, 1977, and most recently in 1990. The FCAA required the USEPA to establish primary and secondary National Ambient Air Quality Standards (NAAQS) — concentrations of pollutants with the goal that they are not to be exceeded—shown below in **Table 3-1**. If concentrations exceed the NAAQS threshold, the area is considered to be in nonattainment. The NAAQS were devised to protect public health, reduce smog, and prevent degradation of environmental quality. Attainment of the NAAQS is achieved by demonstrating that measured concentrations of criteria pollutants for a region remained below the designated thresholds over a period of three years. The attainment status for Hawaii for each criteria air pollutant is shown in **Table 3-1**.

The FCAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The FCAA Amendments of 1990 (FCAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. USEPA has responsibility to review all state SIPs to determine conformation to the mandates of the FCAAA and determine if implementation will achieve air quality goals. Hawaii does not have a SIP because, as shown in **Table 3-1**, the State is in attainment with all NAAQS.

State Regulations

Hawaii Department of Health (DOH). The DOH Clean Air Branch is responsible for air pollution control in the State. The primary services of the branch are provided by its three sections: Engineering, Monitoring, and Enforcement. These sections conduct engineering analysis and permitting, perform monitoring and investigations, and enforce the federal and State air pollution control laws and regulations. The DOH HAR includes two chapters representing the Clean Air Branch. HAR §59 identifies State ambient air quality standards (**Table 3-1**), and HAR §60 discusses air pollution control methodology. HAR §60 includes air permitting, sampling, modeling, and fugitive dust and motor vehicle provisions.

TABLE 3-1: STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS AND ATTAINMENT STATUS

Pollutant	Averaging Period	State		Federal	
		Standard	Attainment Status	Standard	Attainment Status
Ozone (O_3)	8-hour Average	0.08 ppm	Attainment	0.07 ppm (137 µg/m^3)	Attainment
Respirable Particulate Matter (PM_{10})	24-hour Average	150 µg/m^3	Attainment	150 µg/m^3	Attainment
	Annual Arithmetic Mean	50 µg/m^3	Attainment	--	--
Fine Particulate Matter ($PM_{2.5}$)	24-hour Average	--	--	35 µg/m^3	Attainment
	Annual Arithmetic Mean	--	--	9 µg/m^3	Attainment
Carbon Monoxide (CO)	8-hour Average	4.4 ppm	Attainment	9 ppm (10 mg/m^3)	Attainment
	1-hour Average	9 ppm	Attainment	35 ppm (40 mg/m^3)	Attainment
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.04 ppm	Attainment	53 ppb (100 µg/m^3)	Attainment
	1-hour Average	--	--	100 ppb (188 µg/m^3)	Attainment
Sulfur Dioxide (SO_2)	24-hour Average	0.14 ppm	Attainment	--	--
	3-hour Average	0.5 ppm	Attainment	0.5 ppm (1,300 µg/m^3)	Attainment
	1-hour Average	--	--	75 ppb (196 µg/m^3)	Attainment
	Annual Arithmetic Mean	0.03 ppm	Attainment	--	--
Lead (Pb)	Calendar Quarter	1.5 µg/m^3	--	--	--
	Rolling 3-Month Average	--	--	0.15 µg/m^3	--
Hydrogen Sulfide (H_2S)	1-hour Average	0.025 ppm	Attainment	--	--

SOURCE: State of Hawaii Department of Health, *Federal and State Ambient Air Quality Standards*, November 19, 2015; State of Hawaii Department of Health, *State of Hawaii Annual Summary 2022 Air Quality Data,* September 2023.

HAR §11-60.1-33 includes the following fugitive dust prohibitions:

- No person shall cause or permit visible fugitive dust to become airborne without taking reasonable precautions. Examples of reasonable precautions are:
  - Use of water or suitable chemicals for control of fugitive dust in the demolition of any buildings or structures, construction operations, the grading of roads, or the clearing of land;
  - Application of asphalt, water, or suitable chemicals on roads, material stockpiles, and other surfaces which may result in fugitive dust;

  - Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials. Reasonable containment methods shall be employed during sandblasting or other similar operations;
  - Covering all moving, open-bodied trucks transporting materials which may result in fugitive dust;
  - Conducting agricultural operations, such as tilling of land and the application of fertilizers, in such manner as to reasonably minimize fugitive dust;
  - Maintenance of roadways in a clean manner; and
  - Prompt removal of earth or other materials from paved streets which have been transported there by trucking, earth-moving equipment, erosion, or other means.
- Except for persons engaged in agricultural operations or persons who can demonstrate to the director that the best practical operation or treatment is being implemented, no person shall cause or permit the discharge of visible fugitive dust beyond the property lot line on which the fugitive dust originates.

In regard to motor vehicles, HAR §11-60.1-34 includes the following:

- No person shall operate a gasoline-powered motor vehicle which emits visible smoke while upon streets, roads, or highways.
- No person shall operate a diesel-powered motor vehicle which emits visible smoke for a period of more than five consecutive seconds while upon streets, roads, or highways.
- No person shall cause, suffer, or allow any engine to be in operation while the motor vehicle is stationary at a loading zone, parking or servicing area, route terminal, or other off-street areas, except:
  - During adjustment or repair of the engine at a garage or similar place of repair;
  - During operation of ready-mix trucks, cranes, hoists, and certain bulk carriers, or other auxiliary equipment built onto the vehicle or equipment that require power take-off from the engine, provided that there is no visible discharge of smoke and the equipment is being used and operated for the purposes as originally designed and intended. This exception shall not apply to operations of air conditioning equipment or systems;
  - During the loading or unloading of passengers, not to exceed three minutes; and
  - During the buildup of pressure at the startup and cooling down at the closing down of the engine for a period of not more than three minutes.
- No person shall remove, dismantle, fail to maintain, or otherwise cause to be inoperative any equipment or feature constituting an operational element of the air pollution control system or mechanism of a motor vehicle as required by the provisions of the Act except as permitted or authorized by law.

3.3 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Cumulative GHG emissions contribute to an increased greenhouse effect and global climate change, which results in sea level rise, changes in precipitation, habitat, temperature, wildfires, air pollution levels, and changes in the frequency and intensity of weather-related-events. This Study focuses on carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) because these

are the primary GHGs emitted by land use development projects.[10] The individual pollutant's ability to retain infrared radiation represents its "global warming potential" and is expressed in terms of CO_2 equivalents (denoted CO_2e); therefore, CO_2 is the benchmark having a global warming potential of one. CH_4 has a global warming potential of 28 and thus has a 28 times greater global warming effect per metric ton of CH_4 than CO_2. N_2O has a global warming potential of 265. GHG emissions are generally expressed in units of annual metric tons of CO_2 equivalents (i.e., $MTCO_2e$/year).

3.4 CLIMATE CHANGE REGULATORY FRAMEWORK

Federal Laws

The United States Supreme Court has ruled that CO_2 and other GHGs are pollutants under the FCAA, which the USEPA may regulate. On December 7, 2009, the USEPA made two distinct findings: 1) that the current and projected concentrations of the six key GHGs (CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride) in the atmosphere threaten the public health and welfare of current and future generations; and 2) that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.[11]

The United States Supreme Court has ruled that the USEPA exceeded its statutory authority under the FCAA when it determined that stationary source emissions of GHGs would trigger permitting obligations under the Prevention of Significant Deterioration (PSD) program and Title V of the FCAA.[12] The Court, however, upheld those portions of USEPA's rulemaking that require a source to apply best available control technology (BACT) to GHG emissions where the source would otherwise trigger PSD permitting on account of its emissions of other pollutants. The Supreme Court's decision was limited to USEPA's regulation of GHG emissions under the PSD and Title V provisions of the FCAA, and it left unanswered other questions regarding USEPA's permitting and BACT authority under the PSD program, and the USEPA's efforts to regulate GHG emissions from stationary sources.

The Federal Greenhouse Gas Reporting Program (40 Code of Federal Regulations Part 98) requires mandatory reporting of GHG emissions from sources that emit 25,000 metric tons or more of carbon dioxide equivalent per year in the United States. Uses that are generally associated with this level of reporting include power plants, petroleum and natural gas refineries and other heavy manufacturing processes.

State Regulations

In 2007, Hawaii became the second State in the nation to set a binding cap on GHG emissions through Act 234: Hawaii's Climate Change Law, which declared a policy to reduce GHG emissions statewide to 1990 levels by the year 2020. Act 234 served as the foundation for the Hawaii Greenhouse Gas Program, which was established by the DOH to combat the threat of climate change and sea level rise. This Program utilizes the Air Pollution Control Permit process of DOH's Clean Air Branch to regulate GHG emissions statewide, in conjunction with other federal

[10]California Air Pollution Control Officers Association, *California Emissions Estimator Model Users Guide (Version 2022.1)*, April 2022.

[11]Supreme Court of the United States, *Massachusetts et al. v. Environmental Protection Agency et al.*, April 2, 2007.

[12]Supreme Court of the United States, *Utility Air Regulatory Group v. Environmental Protection Agency et al.*, June 23, 2014.

and State programs to mitigate GHGs. Parts of Act 234 are codified in HAR §342B (Air Pollution Control).

Senate Bill (SB) 559, which was signed into law on June 8, 2017, expands strategies and mechanisms to reduce GHG emissions in alignment with the principles and goals adopted in the Paris Agreement, discussed above. SB 559 documents the State's commitment to combat climate change by systematically reducing GHG emissions and improving resiliency to climate change aligned with the principles and goals set by the Paris Agreement. It expands on strategies and mechanisms to reduce GHG emissions through the reduction of energy use, adoption of renewable energy, and control of air pollution among all agencies, departments, industries, and sectors, including transportation. SB 559 states that, "Such strategies and mechanisms shall utilize the best available science, technologies, and policies to reduce GHG emissions and shall be closely aligned with the climate change principles and goals adopted in the Paris Agreement and Hawaii's share of obligations within the expectations apportioned to the United States in the Paris Agreement, regardless of federal action." In addition, "The State shall strive to formulate and communicate long-term low greenhouse gas emission development strategies and shall take actions to conserve and enhance long-term sinks and reservoirs of greenhouse gases, by prioritizing the development of parks, greenways, and restoration of native upland and coastal forests and wetlands."

In 2018, the State Legislature passed Act 15, to establish a permanent Greenhouse Gas Sequestration Task Force within the Office of Planning (now the Office of Planning and Sustainable Development). This task force will work to establish a baseline for GHG and short- and long-term benchmarks for increasing GHG sequestration in the agricultural and natural environment. The Act also establishes a statewide carbon net-negative goal by 2045.

In 2022, the State Legislature passed Act 238, which tasks the Hawaii State Energy Office to "analyze pathways and develop recommendations for achieving the State's economy-wide decarbonization goals." Additionally, the study will evaluate emission reduction pathways from all emitting sectors economy wide. Act 238 establishes a goal for the level of statewide GHG emissions to be at least 50 percent below 2005 levels by 2030 (including aviation emissions).

The DOH established the Hawaii GHG Program to combat the threat of climate change and sea level rise. The program utilizes the Air Pollution Control Permit process of the Clean Air Branch to regulate GHG emissions statewide. The Hawaii GHG program works in conjunction with other federal and State programs to mitigate GHG emissions. This includes the Priority Climate Action Plan (PCAP), which, when completed in 2024, will identify the most pressing areas in need of GHG reduction, and determine fitting implementation-ready measures. The PCAP will use the most recent statewide GHG inventory, which was completed in 2019, to produce an updated, more accurate inventory. The PCAP will be developed based on community engagement, and collaboration between the commission and community members throughout the planning process. The commission will host workshops to support community and stakeholder engagement and plan them in conjunction with neighborhood boards and councils. Information from these meetings will be pivotal in both gathering information to be used for the plan, developing the plan, and revising existing plans.

The Comprehensive Climate Action Plan (CCAP), when completed in 2025, would build upon the PCAP and identify all major sources and sinks of GHGs, establish short- and long-term reduction goals, and fitting strategies and measures. The CCAP will examine current GHG emissions and projected emissions without any changes to status quo activities and compare these to projected emissions with economy wide GHG reduction activities fully carried out.

The State settled the *Navahine v. Hawai'i Department of Transportation (HDOT)* constitutional climate case in 2024. The settlement acknowledges the constitutional rights of Hawai'i's youth to a life-sustaining climate and confirms the commitment by HDOT to plan and implement transformative changes of Hawai'i's transportation system to achieve the State's goal of net-negative emissions by 2045. The agreement includes numerous provisions for immediate and ongoing action steps by HDOT. These include, for example:

- Establishing a GHG Reduction Plan within one year of the agreement, laying the foundation and roadmap to decarbonize Hawai'i's transportation system within the next 20 years.

- Creating a lead unit and responsible positions within HDOT to coordinate the mission of GHG reduction throughout the agency; oversee climate change mitigation and adaptation for the highways program; and ensure implementation of the Complete Streets policy of building and upgrading public highways for all users, ages, and abilities.

- Establishing a volunteer youth council to advise on HDOT mitigation and adaptation commitments in the years to come.

- Improving the state transportation infrastructure budgeting process to prioritize reduction of GHG and vehicles miles traveled (VMT) and transparently analyze and disclose the GHG and VMT impacts of each project and the overall program.

- Making immediate, ambitious investments in clean transportation infrastructure, including completing the pedestrian, bicycle, and transit networks in five years, and dedicating a minimum of $40 million to expanding the public electric vehicle charging network by 2030.

4.0 EXISTING ENVIRONMENTAL SETTING

4.1 CLIMATOLOGY

Maui is characterized by a semi-tropical climate containing a multitude of individual microclimates. The mean annual temperature of the island at all locations near sea level is approximately 75 degrees Fahrenheit. A high proportion of the rainfall that Maui receives each year falls on the northeast facing shores leaving the south and southwest coastal areas relatively dry.

The project area is located within one of these drier areas of the southwest coast. The Kīhei-Makena coast is generally sunny, warm, and dry throughout the entire year. Annual temperatures in the region average in the mid 70's. July through September are historically the warmer months of the year, while the cooler months are December through February. During the summer months, average daily temperatures in Kīhei typically range from the low 70's to the high 80's.[13]

Average rainfall distribution in the Kīhei-Makena region varies from under 10 inches per year along the coastline to more than 20 inches per year in the higher elevations. Rainfall in the Kīhei-Makena region is highly seasonal, with most of the precipitation occurring in the winter months.[14]

Northeast tradewinds prevail approximately 80 to 85 percent of the time. Tradewinds originating from the northeast average 10 to 15 miles per hour during afternoons, with slightly lighter winds during mornings and nights. Between October and April, the southerly winds of Kona storms may be experienced.[15]

4.2 AIR MONITORING DATA

There are no substantial permanent sources of airborne emissions in the immediate vicinity of the project site and the project area in general does not experience adverse air quality conditions. The closest DOH air monitoring site is located at the Hale Piʻilani Park in Kihei, which is approximately nine miles to the north of the proposed project. This station monitors $PM_{2.5}$ concentrations. **Table 4-1** shows that pollutant levels are significantly below the applicable state and federal standards from 2020 to 2023. The primary and contributors to the measured pollutant levels are automobile exhaust from the region's roadways, periodic volcanic eruptions, and the recent fires.

TABLE 4-1: AIR MONITORING DATA SUMMARY

Pollutant	Averaging Period	Federal Standard	Maximum 2021	Maximum 2022	Maximum 2023
$PM_{2.5}$	24-hour	35 $\mu g/m^3$	15.4	8.2	6.1
	Annual	9 $\mu g/m^3$	2.5	2.5	2.3

SOURCE: State of Hawaii Department of Health, *2021 Hawaii Air Quality Data*, December 2022; State of Hawaii Department of Health, *2022 Hawaii Air Quality Data*, September 2023; State of Hawaii Department of Health, *2023 Hawaii Air Quality Data*, September 2024.

4.3 AIR QUALITY SENSITIVE RECEPTORS

Sensitive receptors include, but are not limited to, hospitals, schools, daycare facilities, elderly housing, and convalescent facilities. These are areas where the occupants are more susceptible to the adverse effects of exposure to toxic chemicals, pesticides, and other pollutants. Extra care

[13] County of Maui, Office of Economic Development, *Maui County Data Book 2019*, 2019.
[14] I*bid*.
[15] I*bid*.

must be taken when dealing with contaminants and pollutants in close proximity to areas recognized as sensitive receptors.[16] Sensitive receptors within the project area include single- and multi-family residences located to the west of the project site. Schools or other sensitive institutional facilities have not been identified near the project site.

4.4 STATEWIDE GREENHOUSE GAS EMISSIONS

The State published the Hawaii GHG Emissions Report for 2020 and 2021 in May 2024. The purpose of the report is to track progress toward achieving the State's 2020, 2030, and 2045 GHG reduction goals. Based on the analysis presented in the report for emissions through 2020, net GHG emissions (excluding aviation) in 2020 were lower than net GHG emissions estimated for 1990. Statewide GHG projections for 2025, 2035, and 2045 indicate Hawaii is on target to continue to meet its statewide GHG emissions limit after 2020. Act 15 (2018) and Act 238 (2022) emissions limits were not projected to be met in goal years 2045 and 2030, respectively. These findings will be reassessed and updated in the forthcoming emissions report for 2022.

In 2021, total GHG emissions in Hawaii were 20.18 million metric tons of CO_2 equivalents per year (MTCO2e/year). Emissions from the energy sector accounted for the largest portion (86.7 percent) of total emissions in Hawaii followed by the agriculture, forestry, and other land use sectors (7.2 percent), the industrial processes and product use sector (4.0 percent), and the waste sector (2.0 percent).

Total GHG emissions in Hawaii grew by 17.7 percent between 1990 and 2007 before decreasing by 25.5 percent between 2007 and 2021. Compared to 1990, total emissions in Hawaii in 2021 were roughly 12.3 percent lower, while net emissions were lower by 13.6 percent. As the largest source of emissions in Hawaii, the Energy sector is a major driver of the overall emissions trends. Transportation emissions accounted for the largest share of Energy sector emissions in all inventory years. The trend in transportation emissions increased significantly from 1990 to 2007, decreased from 2007 to 2015, and increased between 2016 and 2019. Then, transportation emissions dropped significantly in 2020 before increasing again in 2021. Transportation emissions are largely driven by domestic aviation and ground transportation emissions, which together account for roughly 84.3 percent of transportation emissions. The trend in stationary combustion emissions increased between 1990 and 2005, decreased between 2005 and 2016 and increased between 2016 and 2019. Then, stationary combustion emissions dropped in 2020 before increasing again in 2021. Stationary combustion emissions are largely driven by emissions from energy industries (electric power plants and petroleum refineries) as well as industrial and commercial emissions. The general decline in emissions from 2019 to 2020 is largely due to the impacts that the coronavirus (COVID-19) pandemic had on travel and economic activities; the increase in emissions in from 2020 to 2021 is due to economic activity rebounding following the height of the pandemic.

Hawaii GHG emissions are projected to be 19.93 million $MTCO_2e$/year in 2025, 18.32 million $MTCO_2e$/year in 2030, and 13.12 million $MTCO_2e$/year in 2045. Net emissions, which take into account carbon sinks, are projected to be 17.55 million $MTCO_2e$/year in 2025, 15.95 million $MTCO_2e$/year in 2030, and 10.57 million $MTCO_2e$/year in 2045. Relative to 2021, total emissions under the baseline scenario are projected to decrease by one percent by 2025, nine percent by 2030, and 35 percent by 2045. Over the same period, net emissions are projected to decrease by one percent, 10 percent, and 41 percent, respectively, and net emissions excluding aviation

[16]USEPA, *Environmental Issues of Concern for Urban Communities: Resources*. https://www.epa.gov/newenglandhc/environmental-issues-concern-urban-communities-resources. Accessed October 7, 2024.

are projected to decrease by four percent, 18 percent, and 63 percent, respectively. This trend is driven by the projected decrease in emissions from energy industries, which includes fuel combustion emissions from electric power plants and petroleum refineries.

5.0 SIGNIFICANCE CRITERIA

The HEPA has not established quantitative significance criteria related to air quality. According to the Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations §§ 1500-1508), the determination of a significant impact is a function of both context and intensity. Context means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Both short- and long-term effects are relevant. Intensity refers to the severity of impact. To determine significance, the severity of the impact must be examined in terms of the type, quality and sensitivity of the resource involved; the location of the project; the duration of the effect (short- or long-term) and other considerations of context. Adverse effects will vary with the setting of the proposed action and the surrounding area.

Similarly, the HEPA has not established quantitative significance criteria related to GHG emissions. Accordingly, GHG emissions are quantified for disclosure. The potential for an adverse effect is based on consistency with regional GHG reduction plans.

6.0 ENVIRONMENTAL EFFECTS

6.1 CONSTRUCTION EMISSIONS OF CRITERIA AIR POLLUTANTS AND OZONE PRECURSORS

Common sources of construction-related air pollution include equipment engine exhaust, as well as mobile source vehicle trips, all of which are temporary in nature and do not represent permanent sources of air pollutants. Hawaii does not have guidance or limitations related to exhaust emissions generated by heavy-duty equipment. Building and road construction are two examples of construction activities with high emissions potential. Emissions during the construction of a building or road can be associated with land clearing, ground excavation, cut and fill operations (i.e., earth moving), and construction of a particular facility itself. Emissions often vary substantially from day to day, depending on the level of activity, the specific operations, and the prevailing meteorological conditions.

Neither Hawaii nor the USEPA have created a model for efficiently estimating construction emissions. Equipment inventories for each phase of construction were populated in the California Emissions Estimator Model (CalEEMod, Version 2022.1.1.29), and the model was used to produce estimated emissions of VOC, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$ during each year of construction activities. This model provides a reasonable estimation of construction emissions in Hawaii for planning only purposes as the equipment fleet in the model includes varying levels of engine emission controls.

Specific construction details, such as a detailed schedule and equipment list, were not available when this analysis was prepared. Construction was assumed to occur in three ten-year phases beginning in 2028 with completion in the years 2038, 2048, and 2058. Single- and multi-family residences as well as golf course improvements were assumed to be constructed equally over the three phases. Workforce housing units, retail units, and office spaces were assumed to be completed during Phase 1, which is consistent with the *Mākena Mauka Traffic Impact Analysis Report* (TIAR). Additional buildings, including restaurant, clubhouse, kitchen, locker rooms, fitness, back-of-house, were assumed to be built in Phase 3 and were analyzed together as “High Turnover (Sit Down Restaurant)” due to lack of project-specific details. Anticipated construction activities for all phases include site preparation, grading, building construction, paving, and architectural coating. All construction activities were assumed to occur daily within each ten-year construction period. CalEEMod estimates emissions up to the year 2050. Phase 3 and full build-out scenarios were estimated using the emissions estimates up to the year 2050. The 2050 emissions estimates would provide a conservative analysis as emissions are estimated to decrease in the years following. Detailed modeling output files containing schedule and equipment information can be found in the **Appendix**.

Table 6-1 discloses the estimated annual criteria pollutant and ozone precursor emissions that would be generated during each year of proposed project construction. The emissions analysis was conservative in nature as it assumed that all equipment would operate continuously throughout an eight-hour workday for the entirety of the schedule. Construction emissions generated by the proposed project would be temporary and would cease upon completion of activities.

TABLE 6-1: CONSTRUCTION EMISSIONS FOR CRITERIA POLLUTANTS AND OZONE PRECURSORS

Phase	Maximum Annual Emissions (Tons per Year)					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Phase 1	2.9	14.6	20.9	<0.1	4.7	2.1
Phase 2	2.2	10.7	17.3	<0.1	4.2	1.9
Phase 3	2.1	9.3	16.3	<0.1	4.1	1.8
Maximum Annual	2.9	14.6	20.9	<0.1	4.7	2.1

SOURCE: TAHA, 2025.

Additionally, during the construction period, proactive transportation management would be implemented to reduce VMT by workers and equipment. Strategies considered include centralized carpool coordination from contractor base yards, establishment of an on-site centralized parking facility, and the use of remote parking lots with shuttle service for construction crews. A reduction in VMT would result in lower emissions of VOC, NO_X, CO, and PM.

Earthwork activities typically generate fugitive dust emissions. The proposed project would implement best management practices, such as periodic application of water onto exposed or disturbed ground areas and material stockpiles, dust and silt fencing for erosion control, maintaining equipment in accordance with manufacturer specifications, sweeping of dust track-out on surrounding roadways, and prompt revegetation of graded areas.

The DOH Clean Air Branch published a Fugitive Dust Fact Sheet, which was last revised in April 2019. The following are examples of reasonable precautions to reduce fugitive dust that could be implemented by the construction contractor. The examples are noted as not being requirements and are solely intended to aid in complying with the fugitive dust rules. The examples are common precautions used for various activities that may generate visible fugitive dust and are not meant to be exclusive nor comprehensive.

- General Measures
  - Design, develop, and implement a dust control plan.
  - Use water or suitable chemical compounds in the demolition of existing structures, construction operations, and grading or clearing of land.
  - Apply water, dust suppressants, or suitable compounds on roads and material stockpiles.
  - Pave ingress and egress points to the site.
  - Establish and monitor speed limits for on-site vehicles.
  - Cover all moving, open-bodied trucks transporting dusty materials.
  - Install and use enclosures, screens, hoods, vacuums, and filters to control the handling, sanding, or finishing of dusty materials.
  - Use trash chutes to direct waste downwards to the ground from upper levels.
  - Clean up material spills as soon as possible.
  - Promptly remove soil or other “carry out” materials from roads adjacent to the site.
  - Install dust screens or wind barriers around construction site.

  - Where practical, provide a buffer zone between fugitive dust activities and residential areas.
- Earth-moving Activities
  - Pre-apply and re-apply water as necessary to maintain soils in a damp condition.
  - Limit the amount of exposed areas through planning and timing of project phases.
  - Cover temporarily exposed areas with mulch.
- Stockpiles
  - Stabilize stockpile materials.
  - Keep stockpiles wet or damp as needed.
  - Keep drop or pile height as low as possible.
  - Install wind barriers.
  - Add or remove material from downwind portion of stockpile.
  - Maintain storage piles to avoid steep sides or faces.
- Trucking
  - Provide water while loading and unloading to prevent fugitive dust.
  - Maintain at least six inches of freeboard on haul vehicles.
  - Level the height of load.
  - Limit vehicular speed while traveling onsite.
  - Cover loads during transport.
  - Install a gravel pad at exit.
  - Reduce carry out with a tire wash or spray system.

The Clean Air Branch does not require specific precautions. Which precaution(s) to implement is/are the responsibility of the owner, project manager or operator of the site. Reasonable precautions to control fugitive dust are determined on a case-by-case basis. The site topography and surroundings, soil conditions, meteorological conditions, site activities, site equipment, and types of material processed must be considered. The use of any or all of the example measures does not directly correlate to compliance of the fugitive dust requirements. The owner, project manager, or operator should assess the project activities and conditions daily and make adjustments so that reasonable precautions are taken to prevent fugitive dust from becoming airborne and crossing the property lines. Generally, dry and windy conditions will require more control measures than rainy and calm periods.

6.2 OPERATIONAL EMISSIONS OF CRITERIA AIR POLLUTANTS AND OZONE PRECURSORS

CalEEMod was also used to estimate operational emissions of criteria air pollutants and ozone precursors. Direct sources of operational emissions would include mobile source vehicle trips and area source emissions, such as consumer product use (i.e., household cleaners) and landscaping activities. Tailpipe emissions from on-road vehicle trips would be distributed along the surrounding roadway network and would not be heavily concentrated in one location. Regarding regional mobile source emissions, the transportation analysis concluded that the proposed project at full

build-out would generate 294 AM peak hour trips and 368 PM peak hour trips.[17] **Table 6-2** shows a summary of the peak hour trips generated by the proposed project. The peak hour trips for each phase were generated based on the developments that would occur in each respective phase and do not include the trips generated from the developments in the other phases. The 2048 Cumulative trips include trips generated from developments completed in 2038 and 2048. The total peak hour trips generated included all trips generated by all developments at full build-out.

TABLE 6-2: PROPOSED PROJECT WEEKDAY TRIP GENERATION

Year	Peak Hour Trips	
	AM	PM
2038	158	192
2048	68	88
2048 Cumulative	226	280
2058	68	88
Total	294	368

SOURCE: SSFM International, *Mākena Mauka Traffic Impact Analysis Report*, March 2025.

Trip rates were taken from the TIAR, which analyzed project generated trips based on the development of 100 affordable housing units, 162 single-family units, and 390 multi-family units. Refinements to the site plan included modifications to the residential unit counts to 109 affordable housing units, 180 single-family units, and 363 multi-family units, and specifics were provided for what had been previously identified as operational support buildings. The TIAR found that the increase in trips generated as a result of the changes was not significant (less than seven total trips in full buildout) and would have no appreciable effect on the operational results. Thus, no changes were made to the project generated trip calculation after the project refinement.

The emissions model requires daily trips to generate emissions. PM peak hour trips were assumed to be ten percent of the total daily trips, resulting in a total of approximately 3,680 trips per day. Area source emissions also include golf course maintenance activities. The emissions analysis accounts for 16 hours per day of riding mower operations and 16 hours per day of other equipment such as green rollers and trimmers.

Indirect source emissions during operations would include energy consumption such as electricity for ventilation and air conditioning, water heating, stoves, lighting, and appliances. To more accurately represent emissions from water in the project area, the water-energy intensity for Maui from the *2016 Hawaii Energy Nexus Report* was used. Water-energy intensity is the amount of energy required to collect, treat, and distribute 1,000 gallons of water (kWh/kgal). The average water-energy intensity in Maui in 2015 was 4.3 kWh/kgal.[18] Detailed operational emissions data can be found in the **Appendix**. **Table 6-3** presents the results of the operational emissions modeling after construction of each phase in 2038, 2048, and 2058. The operational emissions calculated for each phase were based on the developments that would occur in each respective phase and do not include emissions generated from the developments in the other phases. The 2048 Cumulative emissions show the operational emissions in 2048 that would be generated from developments completed in 2038 and 2048. The total annual operational emissions show emissions in 2058 that would be generated from all developments at full build-out.

[17]SSFM International, *Mākena Mauka Traffic Impact Analysis Report*, March 2025.

[18]Department of Land and Natural Resources Commission on Water Resource Management, *2016 Hawaii Energy Nexus Report*, May 2017.

TABLE 6-3: OPERATIONAL EMISSIONS FOR CRITERIA POLLUTANTS AND OZONE PRECURSORS

Year	Annual Emissions (Tons per Year)					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2038	2.7	1.0	7.8	<0.1	1.8	0.5
2048	1.4	0.5	3.5	<0.1	0.8	0.2
2048 Cumulative	4.1	1.5	11.3	<0.1	2.6	0.7
2058	2.7	1.0	41.6	<0.1	0.9	0.2
TOTAL	**6.6**	**2.3**	**52.2**	**<0.1**	**3.5**	**0.9**

SOURCE: TAHA, 2025.

Additionally, the proposed project would include transportation strategies, which focus on reducing private vehicle dependence and offering convenient, comfortable, and low-emission alternatives for residents, guests, and employees. Planned features include an integrated bicycle network, an extensive pedestrian trial, and on-demand shuttles. These features would result in lowered VMT and a decrease in VOC, NO_X, CO, and PM emissions.

Regarding localized mobile source emissions, CO concentrations are often used as one indicator of pollutant exposure to sensitive receptors. The USEPA has published guidance on prevention of CO "hot spots" at congested traffic intersections resulting from idling and slow-moving vehicles. The guidance focuses on the avoidance of localized spikes in CO concentrations causing violations of the ambient air quality standards that may occur at heavily trafficked and highly congested intersections. In response to the guidance promulgated by the USEPA, numerous regulatory agencies throughout the country undertook research to determine the types of intersections that may pose air quality concerns with regards to CO hot spots. Since the island of Maui has always been in attainment of the ambient air quality standards, local regulatory agencies did not have a need to conduct research to satisfy the air quality plan requirements. However, mobile source emissions of CO are of particular concern in California, where the South Coast Air Quality Management (SCAQMD) engaged in extensive research to demonstrate how the CO NAAQS could be attained for the region.

Research published in 2003 by the SCAQMD to support SIP documentation involved air dispersion modeling of mobile CO emissions at some of the busiest intersections in Southern California, where regional mobile source emissions are substantially higher than the project area on a per-square-mile basis. Results of the CO dispersion modeling exercise determined that an intersection experiencing a peak hour volume of approximately 10,000 vehicles per hour would generate a maximum 1-hour CO concentration approximately 77 percent below the ambient air quality standard.[19] The traffic analysis prepared for the proposed project demonstrates that local intersection volumes are nowhere near 10,000 vehicles per hour.[20] There is no potential for the proposed project to result in a CO hotspot and, therefore, no potential for the proposed project to result in substantial concentrations of related exhaust pollutants.

[19]South Coast Air Quality Management District, *Final 2003 AQMP Appendix V: Modeling and Attainment Demonstrations,* August 2003.

[20]SSFM International, *Mākena Mauka Traffic Impact Analysis Report*, August 2024.

6.3 CONSTRUCTION GREENHOUSE GAS EMISSIONS

The State, through Act 234 and SB 559, has acknowledged that GHG emissions are a statewide impact. The proposed project would generate temporary GHG emissions through construction activities.

GHG emissions related to construction activities were estimated in a similar manner as the criteria pollutant emissions analysis presented above. The primary source of construction related GHG emissions would be exhaust from heavy-duty equipment. **Table 6-4** shows construction related GHG emissions.

TABLE 6-4: CONSTRUCTION-RELATED GHG EMISSIONS

	Annual Emissions (Tons per Year)			
Year	CO_2	CH_4	NO_2	$MTCO_2e$
2028	4,320	0.2	0.2	4,374
2029	4,300	0.2	0.2	4,353
2030	4,269	0.2	0.2	4,321
2031	4,239	0.2	0.2	4,290
2032	4,222	0.2	0.1	4,266
2033	4,184	0.2	0.1	4,227
2034	4,160	0.2	0.1	4,201
2035	4,137	0.1	0.1	4,179
2036	4,129	0.1	0.1	4,170
2037	3,998	0.1	0.1	4,038
2038	3,662	0.1	0.1	3,696
2039	3,672	0.1	0.1	3,707
2040	3,673	0.1	0.1	3,707
2041	3,656	0.1	0.1	3,690
2042	3,649	0.1	0.1	3,683
2043	3,643	0.1	0.1	3,677
2044	3,648	0.1	0.1	3,681
2045	3,634	0.1	0.1	3,666
2046	3,631	0.1	0.1	3,663
2047	3,555	0.1	0.1	3,587
2048	3,602	0.1	0.1	3,635
2049	3,623	0.1	0.1	3,656
2050	3,621	0.1	0.1	3,654
2051	3,621	0.1	0.1	3,654
2052	3,621	0.1	0.1	3,654
2053	3,621	0.1	0.1	3,654
2054	3,621	0.1	0.1	3,654
2055	3,621	0.1	0.1	3,654
2056	3,621	0.1	0.1	3,654
2057	3,621	0.1	0.1	3,654

SOURCE: TAHA, 2025.

As previously discussed, total statewide GHG emissions are projected to be 19.93 million $MTCO_2e$/year in 2025. Construction-related GHG emissions associated with the proposed project would generate an annual maximum of approximately 4,374 $MTCO_2e$, which represents 0.02 percent of the statewide annual emissions inventory. Additionally, proactive transportation management would be implemented to reduce VMT by workers and equipment. A reduction in VMT would result in lower CO_2 emissions.

6.4 OPERATIONAL GREENHOUSE GAS EMISSIONS

GHG emissions related to operational activities were estimated in a similar manner as the criteria pollutant emissions analysis presented above. The proposed project would generate permanent GHG emissions through energy consumption, landscaping equipment, residential vehicular travel, water use, and waste generation. Hawaii is committed to renewable energy production, which does not generate GHG emissions. In 2023, approximately 31 percent of electricity in Hawaii was from renewable sources.[21] Hawaii has enacted a law that mandates that all of the State's electricity comes from renewable sources no later than 2045.

Table 6-5 shows the estimated annual operational GHG emissions after construction of each phase in 2038, 2048, and 2058. The operational emissions calculated for each phase were based on the developments that would occur in each respective phase and do not include emissions generated from the developments in the other phases. The 2048 Cumulative emissions show the operational emissions in 2048 that would be generated from developments completed in 2038 and 2048. The total annual operational emissions show emissions in 2058 that would be generated from all developments at full build-out. The proposed project would generate approximately 3,734 metric tons of CO_2e at full build out in 2058.

TABLE 6-5: ESTIMATED ANNUAL GREENHOUSE GAS EMISSIONS

Scenario and Emission Source	Carbon Dioxide Equivalent (Metric Tons per Year)				
	2038	**2048**	**2048 Cumulative**	**2058**	**Total**
Mobile Source Emissions (Direct)	1,620	713	2,333	712	2,966
Area Source Emissions (Direct)	4	2	6	76	83
Energy Source Emissions (Indirect)	782	--	--	--	--
Water Distribution Emissions (Indirect)	99	59	158	157	340
Waste Disposal Emissions (Indirect)	82	42	124	222	346
TOTAL	**2,587**	**818**	**2,621**	**1,167**	**3,734**

SOURCE: TAHA, 2025.

The proposed project would include transportation features, which focuses on reducing private vehicle dependence and offering convenient, comfortable, and low-emission alternatives for residents, guests, and employees. These transportation features would result in lower mobile-source emissions. Furthermore, all buildings over 500 square feet within the project area would be LEED certified, which would include design features that encourage energy and water efficiency. Project-related indirect emissions would decline as the State moves toward a fully renewable supply of energy. In addition, the proposed project would not interfere with the development of clean energy supplies. Thus, the proposed project would not contribute to a

[21]U.S. Energy Information Administration, *Hawaii State Energy Profile*, April 18, 2024.

significant increase in GHG emissions. Part time residents typically travel to and from Maui via public or private aircraft. Because Maui residents also travel and tourism is Maui's largest industry, it would be very difficult if not impossible to determine and distinguish the specific impacts from new part time residents of the project from impacts from others that travel to and from Maui. It would not be possible to discern the air travel effects of new potential residences and impacts from others that travel to Maui. Furthermore, none of the applicable climate change and/or GHG emission reduction plans include the reduction of flights to/from Maui as a method for reducing GHG emissions. As the majority of aviation emissions would be generated outside of the State jurisdiction, there is no potential for project-related air travel to interfere with State GHG reduction goals.

6.5 CLIMATE CHANGE

The Mākena Mauka Sustainability Report (Sustainability Report), commissioned by AREG AC Makena Propco, LLC, serves as a guide to understanding and implementing regenerative development practices within the context of Mākena Mauka, setting a precedent for harmonizing development with nature.[22] While sustainability emphasizes meeting present needs without jeopardizing the future, the focus of this initiative extends beyond mere sustainability; it aims to cultivate a restorative long-term relationship between the community and the ecosystems of Makena through regenerative design. Regenerative design is an innovative approach that seeks to create systems and environments capable of restoring and revitalizing their ecosystems. This design philosophy goes beyond sustainability by not only aiming to minimize negative impacts on the environment but also to enhance and regenerate the natural world and improve overall human well-being. It emphasizes the interconnectedness of all systems and aims to create positive ecological, social, and economic outcomes by integrating nature and human activity in a harmonious way. The Sustainability Report was built on the foundation of State, County, and local initiatives, leaning heavily on the Hawaii 2050 Sustainability Plan, the Maui Island Plan and the proposed South Maui Community Plan for policies and applications that could inform the Mākena Mauka plans. It also includes sustainability plans and practices currently being implemented by Mākena Golf and Beach Club. In alignment with LEED standards, the proposed project emphasizes systemic thinking, stakeholder engagement, performance feedback, and innovation, paving the way for new benchmarks for development in Maui.

Regarding climate change, the Sustainability Report focuses on integrating design elements that enhance resilience against climate-related effects, ensuring structures and landscapes are equipped to withstand environmental stresses.

Although the proposed project will generate temporary construction-related GHG emissions, these emissions will not significantly interfere with Hawaii's clean energy development goals. The permanent emissions, primarily from vehicle exhaust and utility use, are also noted to be relatively small in context and will not impede the state's climate objectives. The proposed project will emphasize energy independence by incorporating renewable energy sources that align closely with Hawaii's clean energy objectives. The proposed project will assist with Hawaii's goal of achieving 100% renewable energy by 2045. The anticipated transition to renewable energy sources will help reduce GHG emissions associated with energy consumption once the proposed project is operational. Within the project site, solar installations have already been installed on the Wastewater Treatment Plant, HM residential garages, and the golf maintenance building. Electric charging stations will be present throughout the site. LEED certification also inherently focuses

[22] Amanda Cording, *Mākena Mauka Sustainability Report*, 2025.

on reducing energy use and enhancing environmental performance during construction and operation.

The proposed project would be guided by the U.S. Green Building Council's LEED rigorous criteria. The certification process requires diligent adherence to a set of sustainability metrics. All buildings over 500 square feet within the proposed project will be LEED certified. The criteria are as follows:

- *Sustainable Site Development*: Focuses on site selection, construction practices, and habitat protection.
- *Water Efficiency*: Emphasizes water conservation and efficiency in irrigation and indoor water use.
- *Energy Efficiency & Renewable Energy Sources*: Promotes reduced energy consumption, minimum energy performance standards, and advanced metering. Renewable energy generation on-site from sources like solar or wind is highly recommended.
- *Materials and Resources*: Encourages the use of sustainable materials, recycling, and efficient resource management.
- *Indoor Environmental Quality*: Aims to improve indoor air quality, lighting, and thermal comfort for occupants.

Transportation is the largest source of energy use and GHG emissions in Hawai‘i. Within the project boundary, the opportunity to reduce site-based transportation emissions through master-planning design and operational strategies is significant. The proposed project's transportation plan focuses on reducing private vehicle dependence and offering convenient, comfortable, and low-emission alternatives for residents, guests, and employees. This strategy will have the greatest impact when implemented in coordination with the broader Mākena Golf & Beach Club and potentially connected to regional mobility networks. Components of the transportation plan include:

Benefits of Expanding Mobility Options. Offering diverse and accessible transportation choices enhances sustainability while delivering a wide range of user benefits:

For Employees:

- Reduces commuting costs, increasing take-home pay;
- Enables more productive or restful commute options (e.g., via shuttle or carpool);
- Supports shorter travel times during off-peak hours; and
- Encourages walking and biking for physical and mental health.

For Residents:

- Reduces or eliminates the need for car ownership or rental;
- Enhances connectivity across the site and to the broader community;
- Provides opportunities for informal outdoor recreation and engagement with nature; and
- Contributes to personal wellness and ease of movement.

Design Strategies to Promote Walkability and Alternative Modes. The proposed project site plan is intentionally designed to support walkability and reduce reliance on private vehicles, incorporating principles of compact development and Complete Streets. Planned features include:

- Compact, pedestrian-friendly site layout to encourage walking as a primary mode of movement;
- Complete Street design for all internal roadways, prioritizing pedestrian safety, interest, and comfort Integrated bicycle network using shared lanes, striped paths, or protected bikeways for connectivity and safety; and
- Extensive pedestrian trail system, offering varied lengths and surfacing to connect to beaches, recreational amenities, and gathering spaces;

Ongoing Operations & Mobility Programming. Post-construction, a range of operational programs would be implemented to encourage long-term transportation sustainability, including:

- A Resort Transportation Concierge Program offering on-demand shuttles and offsite transportation coordination from the public parking areas within the project to the nearby beach parks.

Construction Phase Mobility Measures. Even during the construction period, proactive transportation management will be implemented to reduce VMT by workers and equipment. Strategies under evaluation include:

- Centralized carpool coordination from contractor base yards;
- Establishment of an on-site centralized parking facility; and
- Use of remote parking lots with shuttle service for construction crews.

The proposed project is committed to operating under the overarching principles of low impact development. Low impact development is an approach to new or re-development that aims to reduce the impact of the project on the environment by mimicking pre-development hydrology, observing landforms and minimizing grading, mimicking nature in architectural components (biophilia), incorporating micro-catchments to increase infiltration (keyline design), thinking carefully about existing site conditions like sun, wind, and rain in planting design (permaculture) and filtering stormwater with nature-based solutions like Green Stormwater Infrastructure.

Through smart design, coordinated programming, and intentional investment in low-emission mobility, the proposed project is working to create a community that is not only beautiful and connected, but also forward-thinking in how people move—honoring the land and reducing the project's long-term carbon impact.

As global climate conditions continue to evolve, sea level rise and coastal storm surge are increasingly critical considerations in long-term land use planning and development, especially for shoreline properties such as portions of the proposed project. For coastal communities in Hawai‘i—where the interface between land and ocean is both culturally significant and ecologically sensitive—responsible planning requires a proactive approach to climate adaptation. The proposed project acknowledges that future environmental conditions may shift dramatically over the coming decades. In alignment with best practices from State agencies, the scientific

community, and national resilience frameworks, the following guiding principles were recommended to be integrated into project planning and design to address the risks of sea level rise and storm surge:

1. *Use of Best Available Science*. Planning benchmarks are informed by leading institutions such as the University of Hawai'i's School of Ocean and Earth Science and Technology and the National Oceanic and Atmospheric Administration. These resources offer sea level rise projections that support scenario-based planning and adaptive design.
2. *Scenario-Based Risk Assessment*. Rather than relying on a single estimate, the project team will consider a range of sea level rise projections—typically from 1 foot by mid-century to up to 6.2 feet by the end of the century. This includes modeling the impacts of storm surge in combination with high tide events to understand compounding risk.
3. *Site-Sensitive Design and Elevation Awareness*. Natural topography and elevation will be evaluated carefully in project siting to avoid development in low-lying, flood-prone zones. Whenever feasible, structures and infrastructure are placed outside of areas vulnerable to projected inundation.
4. *Protection of Coastal Ecosystem*. Beaches and rocky shoreline outcroppings serve as natural buffers against storm events and sea level rise. The project seeks to avoid hard armoring and instead supports nature-based solutions that allow for coastal adaptation, such as vegetated buffers and managed retreat where necessary.

By embedding these principles into the overall sustainability framework, the proposed project demonstrates a forward-thinking, resilient approach to development that balances innovation with respect for place, people, and the ever-changing coastal environment.

7.0 CUMULATIVE EFFECTS

HAR §11-200.1-2 contains the definition of a cumulative impact. A cumulative impact is defined as the impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Ten past, present, and reasonably foreseeable future projects have been identified in the project area. They include:

- The Maluaka Development includes 13 single-family and six multi-family condominium units.
- The Makena H-M Redevelopment Project (ATC Makena) includes conversion of the former 310-room hotel at the Makena Beach & Golf Club Resort into a combination of hotel, condominium, beach cottage units, together with a spa hale. A total of 65 units are proposed.
- The Makena Resort M-5/M-6/S-7/B-2 Project (Kaeo, ATC Makena) is a mixed-use project involving single-family, multi-family, resort commercial, transient vacation rental components and related improvements. Project totals include 30 multi-family units, 18 single-family cottages, 32 single-family custom lots, 9 transient vacation rental units, 14 condominiums, and 27,300 square feet of commercial space.
- Wailea 670 is a master planned residential community with 1,150 residential units, inclusive of 288 on-site affordable housing.
- The Ledcor Wailea Projects include construction of 925 to 975 single-family and multi-family units.
- The Grand Wailea Enhancement Project includes the proposed addition of 137 guest rooms, improvements to resort pool areas, luau grounds, spa, and the main Napua Tower.
- The H-2 Residential Project includes up to 53 single-family condominium lots, beach parking, and related infrastructure improvements.
- The Makena Resort U-1 Project is a 36-lot agricultural residential subdivision project.
- Wailea Golf LLC proposes a planned, mix-use development among 214 acres, to include a resort hotel and between 856 and 1,070 housing units, with between 198 and 247 being workforce housing.
- The Ulupalakua Ranch Renewable Energy has ongoing consideration for large-scale solar or geothermal renewable energy projects on 200 acres of Ulupalakua Ranch land, however, no specific project is proposed at this time.

By its very nature, air pollution is largely a cumulative impact. Ambient air quality standards may be violated or approach nonattainment levels due to past development or by increasing emissions-generating activity in the region. The proposed site is located in an Attainment/Unclassified area for all NAAQS. The regional air quality in Hawaii is considered to be good. The nearest air quality monitoring station to the project site only records concentrations of $PM_{2.5}$. **Table 4-1** shows that pollutant levels are significantly below the State standards. The monitored concentrations account for all existing sources in the project area, including motor vehicles, agricultural activities, industrial stationary sources, and many other existing sources of emissions in the project area. The project and the ten past, present, and reasonably foreseeable future projects represent a relatively small percentage of existing development. It is reasonable

to assume that the additional land use developments would not cumulatively contribute to an exceedance of the State air quality standards due to the existing low concentrations. In addition, there is no existing cumulative air quality impact. There is no potential for the project to significantly contribute to a cumulative air quality impact.

The State, through Act 234 (June 30, 2007) and SB 559 (June 8, 2017), has acknowledged that GHG emissions are a statewide impact. Emissions generated by the proposed project in combination with past, present, and reasonably probable future related projects could contribute to this impact. Although climate change is cumulative in nature, not every individual project that emits GHGs would necessarily be found to contribute to a significant cumulative impact on the environment. Therefore, there is no potential for the proposed project to significantly contribute to a cumulative GHG impact. Furthermore, neither the proposed project nor related projects would interfere with statewide efforts to reduce GHG emissions. To the contrary, the solar energy related project will increase the regional availability of clean energy. In addition, it is reasonable to assume that, similar to the proposed project, the related projects also include sustainability plans to minimize GHG emissions.

Appendix

California Emission Estimator Model (CalEEMod) Outputs

Makena Mauka - Phase 1 Detailed Report

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4.10. Soil Carbon Accumulation By Vegetation Type
4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated
4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated
4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated
4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated
4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated
4.10.6. Avoided and Sequestered Emissions by Species - Mitigated
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5.1. Construction Schedule
5.2. Off-Road Equipment
5.2.1. Unmitigated
5.2.2. Mitigated
5.3. Construction Vehicles
5.3.1. Unmitigated
5.3.2. Mitigated
5.4. Vehicles
5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings
5.6. Dust Mitigation
5.6.1. Construction Earthmoving Activities
5.6.2. Construction Earthmoving Control Strategies
5.7. Construction Paving
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5.9. Operational Mobile Sources
5.9.1. Unmitigated
5.9.2. Mitigated
5.10. Operational Area Sources
5.10.1. Hearths
5.10.1.1. Unmitigated
5.10.1.2. Mitigated
5.10.2. Architectural Coatings
5.10.3. Landscape Equipment
5.10.4. Landscape Equipment - Mitigated
5.11. Operational Energy Consumption
5.11.1. Unmitigated

5.11.2. Mitigated
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5.12.1. Unmitigated
5.12.2. Mitigated
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5.13.1. Unmitigated
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5.18.1.1. Unmitigated
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7.4. Health & Equity Measures

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7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Makena Mauka - Phase 1
Construction Start Date	1/3/2028
Operational Year	2038
Lead Agency	—
Land Use Scale	Plan/community
Analysis Level for Defaults	Statewide
Windspeed (m/s)	15.0
Precipitation (days)	113
Location	34.022579521235755, -118.40535118073069
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4454
EDFZ	16
Electric Utility	Statewide Average
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Mid Rise	94.0	Dwelling Unit	2.47	90,240	0.00	—	278	affordable housing

Single Family Housing	15.0	Dwelling Unit	4.87	29,250	175,693	—	44.0	affordable housing
Apartments Mid Rise	121	Dwelling Unit	3.18	116,160	0.00	—	358	multifamily homes
Strip Mall	3.00	1000sqft	0.07	3,000	0.00	—	—	retail spaces
Office Park	46.0	1000sqft	1.06	46,000	0.00	—	—	offices
Single Family Housing	60.0	Dwelling Unit	19.5	117,000	702,771	—	178	single family housing

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Energy	E-12-A	Install Alternative Type of Water Heater in Place of Gas Storage Tank Heater in Residences
Energy	E-12-B	Install Electric Space Heater in Place of Natural Gas Heaters in Residences
Energy	E-13	Install Electric Ranges in Place of Gas Ranges

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	15.8	13.9	76.4	102	0.19	2.86	17.9	20.7	2.63	6.87	9.51	—	26,040	26,040	0.87	1.05	24.4	26,399
Mit.	15.8	13.9	76.4	102	0.19	2.86	17.9	20.7	2.63	6.87	9.51	—	26,040	26,040	0.87	1.05	24.4	26,399
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	15.6	13.9	76.9	98.0	0.19	2.86	17.9	20.7	2.63	6.87	9.51	—	25,719	25,719	0.87	1.05	0.63	26,055
Mit.	15.6	13.9	76.9	98.0	0.19	2.86	17.9	20.7	2.63	6.87	9.51	—	25,719	25,719	0.87	1.05	0.63	26,055
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	11.1	9.88	54.7	70.3	0.14	2.03	12.3	14.3	1.88	4.83	6.68	—	18,368	18,368	0.62	0.75	7.48	18,614
Mit.	11.1	9.88	54.7	70.3	0.14	2.03	12.3	14.3	1.88	4.83	6.68	—	18,368	18,368	0.62	0.75	7.48	18,614
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.02	1.80	9.98	12.8	0.02	0.37	2.25	2.61	0.34	0.88	1.22	—	3,041	3,041	0.10	0.12	1.24	3,082
Mit.	2.02	1.80	9.98	12.8	0.02	0.37	2.25	2.61	0.34	0.88	1.22	—	3,041	3,041	0.10	0.12	1.24	3,082
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	15.8	13.9	76.4	102	0.19	2.86	17.9	20.7	2.63	6.87	9.51	—	26,040	26,040	0.87	1.05	24.4	26,399
2029	15.3	13.7	72.1	99.9	0.19	2.68	17.9	20.6	2.48	6.87	9.35	—	25,821	25,821	0.86	1.03	21.9	26,173
2030	15.0	13.3	69.5	99.1	0.19	2.59	17.9	20.5	2.36	6.87	9.23	—	25,610	25,610	0.84	1.02	19.6	25,953
2031	14.8	13.1	66.9	97.0	0.19	2.51	17.9	20.4	2.28	6.87	9.16	—	25,402	25,402	0.84	0.86	17.4	25,696
2032	14.3	12.7	62.8	92.9	0.19	2.27	17.9	20.1	2.07	6.87	8.95	—	25,206	25,206	0.83	0.84	15.3	25,492

2033	13.9	12.5	60.2	90.1	0.19	2.08	17.9	20.0	1.92	6.87	8.79	—	25,025	25,025	0.83	0.82	13.4	25,304
2034	13.7	12.3	58.3	88.8	0.19	1.96	17.9	19.8	1.81	6.87	8.68	—	24,856	24,856	0.83	0.80	11.6	25,128
2035	13.4	12.0	55.4	86.3	0.19	1.79	17.9	19.7	1.65	6.87	8.52	—	24,703	24,703	0.80	0.79	10.0	24,967
2036	13.1	11.8	52.6	83.7	0.19	1.65	17.9	19.5	1.52	6.87	8.39	—	24,564	24,564	0.78	0.78	8.59	24,826
2037	12.9	11.7	51.6	83.1	0.19	1.61	17.9	19.5	1.48	6.87	8.36	—	24,442	24,442	0.78	0.77	7.34	24,698
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	15.6	13.9	76.9	98.0	0.19	2.86	17.9	20.7	2.63	6.87	9.51	—	25,719	25,719	0.87	1.05	0.63	26,055
2029	15.2	13.5	72.6	96.3	0.19	2.68	17.9	20.6	2.48	6.87	9.35	—	25,506	25,506	0.87	1.03	0.57	25,836
2030	15.0	13.2	70.0	95.6	0.19	2.59	17.9	20.5	2.36	6.87	9.23	—	25,300	25,300	0.85	1.02	0.51	25,624
2031	14.7	13.0	67.3	93.8	0.19	2.51	17.9	20.4	2.28	6.87	9.16	—	25,098	25,098	0.85	1.00	0.45	25,417
2032	14.3	12.7	63.2	90.0	0.19	2.27	17.9	20.1	2.07	6.87	8.95	—	24,906	24,906	0.84	0.98	0.40	25,220
2033	13.9	12.4	60.6	87.3	0.19	2.08	17.9	20.0	1.92	6.87	8.79	—	24,729	24,729	0.84	0.82	0.35	24,995
2034	13.7	12.3	58.7	86.0	0.19	1.96	17.9	19.8	1.81	6.87	8.68	—	24,564	24,564	0.83	0.80	0.30	24,824
2035	13.4	12.0	55.8	83.6	0.19	1.79	17.9	19.7	1.65	6.87	8.52	—	24,414	24,414	0.81	0.79	0.26	24,668
2036	13.0	11.7	53.0	81.2	0.19	1.65	17.9	19.5	1.52	6.87	8.39	—	24,278	24,278	0.79	0.79	0.22	24,532
2037	12.9	11.6	51.9	80.6	0.19	1.61	17.9	19.5	1.48	6.87	8.36	—	24,159	24,159	0.79	0.77	0.19	24,408
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	11.1	9.88	54.7	70.3	0.14	2.03	12.3	14.3	1.88	4.81	6.68	—	18,368	18,368	0.62	0.75	7.48	18,614
2029	10.9	9.72	51.8	69.2	0.14	1.92	12.3	14.2	1.77	4.82	6.59	—	18,265	18,265	0.62	0.74	6.76	18,508
2030	10.7	9.45	50.0	68.7	0.14	1.85	12.3	14.2	1.68	4.82	6.50	—	18,118	18,118	0.60	0.73	6.04	18,355
2031	10.5	9.31	48.0	67.4	0.14	1.80	12.3	14.1	1.63	4.82	6.45	—	17,972	17,972	0.60	0.71	5.37	18,205
2032	10.2	9.08	45.2	64.8	0.14	1.62	12.3	14.0	1.49	4.83	6.32	—	17,884	17,884	0.60	0.60	4.74	18,083
2033	9.92	8.89	43.2	62.7	0.14	1.49	12.3	13.8	1.37	4.82	6.19	—	17,707	17,707	0.60	0.59	4.14	17,901
2034	9.77	8.76	41.9	61.8	0.14	1.40	12.3	13.7	1.29	4.82	6.11	—	17,589	17,589	0.59	0.57	3.58	17,779
2035	9.55	8.58	39.8	60.1	0.14	1.28	12.3	13.6	1.18	4.82	6.00	—	17,481	17,481	0.58	0.56	3.10	17,666
2036	9.34	8.42	37.8	58.5	0.14	1.18	12.3	13.5	1.09	4.83	5.92	—	17,432	17,432	0.57	0.56	2.66	17,616

2037	8.89	8.02	35.7	55.8	0.13	1.11	11.9	13.0	1.02	4.65	5.67	—	16,682	16,682	0.54	0.53	2.18	16,856
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	2.02	1.80	9.98	12.8	0.02	0.37	2.24	2.61	0.34	0.88	1.22	—	3,041	3,041	0.10	0.12	1.24	3,082
2029	1.99	1.77	9.46	12.6	0.02	0.35	2.25	2.60	0.32	0.88	1.20	—	3,024	3,024	0.10	0.12	1.12	3,064
2030	1.95	1.72	9.12	12.5	0.02	0.34	2.25	2.58	0.31	0.88	1.19	—	3,000	3,000	0.10	0.12	1.00	3,039
2031	1.92	1.70	8.77	12.3	0.02	0.33	2.25	2.57	0.30	0.88	1.18	—	2,976	2,976	0.10	0.12	0.89	3,014
2032	1.87	1.66	8.25	11.8	0.02	0.30	2.25	2.55	0.27	0.88	1.15	—	2,961	2,961	0.10	0.10	0.78	2,994
2033	1.81	1.62	7.88	11.4	0.02	0.27	2.25	2.52	0.25	0.88	1.13	—	2,932	2,932	0.10	0.10	0.68	2,964
2034	1.78	1.60	7.64	11.3	0.02	0.26	2.25	2.50	0.24	0.88	1.12	—	2,912	2,912	0.10	0.10	0.59	2,943
2035	1.74	1.57	7.26	11.0	0.02	0.23	2.25	2.48	0.21	0.88	1.09	—	2,894	2,894	0.10	0.09	0.51	2,925
2036	1.70	1.54	6.90	10.7	0.02	0.22	2.25	2.47	0.20	0.88	1.08	—	2,886	2,886	0.09	0.09	0.44	2,917
2037	1.62	1.46	6.52	10.2	0.02	0.20	2.17	2.37	0.19	0.85	1.04	—	2,762	2,762	0.09	0.09	0.36	2,791

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	15.8	13.9	76.4	102	0.19	2.86	17.9	20.7	2.63	6.87	9.51	—	26,040	26,040	0.87	1.05	24.4	26,399
2029	15.3	13.7	72.1	99.9	0.19	2.68	17.9	20.6	2.48	6.87	9.35	—	25,821	25,821	0.86	1.03	21.9	26,173
2030	15.0	13.3	69.5	99.1	0.19	2.59	17.9	20.5	2.36	6.87	9.23	—	25,610	25,610	0.84	1.02	19.6	25,953
2031	14.8	13.1	66.9	97.0	0.19	2.51	17.9	20.4	2.28	6.87	9.16	—	25,402	25,402	0.84	0.86	17.4	25,696
2032	14.3	12.7	62.8	92.9	0.19	2.27	17.9	20.1	2.07	6.87	8.95	—	25,206	25,206	0.83	0.84	15.3	25,492
2033	13.9	12.5	60.2	90.1	0.19	2.08	17.9	20.0	1.92	6.87	8.79	—	25,025	25,025	0.83	0.82	13.4	25,304
2034	13.7	12.3	58.3	88.8	0.19	1.96	17.9	19.8	1.81	6.87	8.68	—	24,856	24,856	0.83	0.80	11.6	25,128
2035	13.4	12.0	55.4	86.3	0.19	1.79	17.9	19.7	1.65	6.87	8.52	—	24,703	24,703	0.80	0.79	10.0	24,967
2036	13.1	11.8	52.6	83.7	0.19	1.65	17.9	19.5	1.52	6.87	8.39	—	24,564	24,564	0.78	0.78	8.59	24,826
2037	12.9	11.7	51.6	83.1	0.19	1.61	17.9	19.5	1.48	6.87	8.36	—	24,442	24,442	0.78	0.77	7.34	24,698

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	15.6	13.9	76.9	98.0	0.19	2.86	17.9	20.7	2.63	6.87	9.51	—	25,719	25,719	0.87	1.05	0.63	26,055
2029	15.2	13.5	72.6	96.3	0.19	2.68	17.9	20.6	2.48	6.87	9.35	—	25,506	25,506	0.87	1.03	0.57	25,836
2030	15.0	13.2	70.0	95.6	0.19	2.59	17.9	20.5	2.36	6.87	9.23	—	25,300	25,300	0.85	1.02	0.51	25,624
2031	14.7	13.0	67.3	93.8	0.19	2.51	17.9	20.4	2.28	6.87	9.16	—	25,098	25,098	0.85	1.00	0.45	25,417
2032	14.3	12.7	63.2	90.0	0.19	2.27	17.9	20.1	2.07	6.87	8.95	—	24,906	24,906	0.84	0.98	0.40	25,220
2033	13.9	12.4	60.6	87.3	0.19	2.08	17.9	20.0	1.92	6.87	8.79	—	24,729	24,729	0.84	0.82	0.35	24,995
2034	13.7	12.3	58.7	86.0	0.19	1.96	17.9	19.8	1.81	6.87	8.68	—	24,564	24,564	0.83	0.80	0.30	24,824
2035	13.4	12.0	55.8	83.6	0.19	1.79	17.9	19.7	1.65	6.87	8.52	—	24,414	24,414	0.81	0.79	0.26	24,668
2036	13.0	11.7	53.0	81.2	0.19	1.65	17.9	19.5	1.52	6.87	8.39	—	24,278	24,278	0.79	0.79	0.22	24,532
2037	12.9	11.6	51.9	80.6	0.19	1.61	17.9	19.5	1.48	6.87	8.36	—	24,159	24,159	0.79	0.77	0.19	24,408
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	11.1	9.88	54.7	70.3	0.14	2.03	12.3	14.3	1.88	4.81	6.68	—	18,368	18,368	0.62	0.75	7.48	18,614
2029	10.9	9.72	51.8	69.2	0.14	1.92	12.3	14.2	1.77	4.82	6.59	—	18,265	18,265	0.62	0.74	6.76	18,508
2030	10.7	9.45	50.0	68.7	0.14	1.85	12.3	14.2	1.68	4.82	6.50	—	18,118	18,118	0.60	0.73	6.04	18,355
2031	10.5	9.31	48.0	67.4	0.14	1.80	12.3	14.1	1.63	4.82	6.45	—	17,972	17,972	0.60	0.71	5.37	18,205
2032	10.2	9.08	45.2	64.8	0.14	1.62	12.3	14.0	1.49	4.83	6.32	—	17,884	17,884	0.60	0.60	4.74	18,083
2033	9.92	8.89	43.2	62.7	0.14	1.49	12.3	13.8	1.37	4.82	6.19	—	17,707	17,707	0.60	0.59	4.14	17,901
2034	9.77	8.76	41.9	61.8	0.14	1.40	12.3	13.7	1.29	4.82	6.11	—	17,589	17,589	0.59	0.57	3.58	17,779
2035	9.55	8.58	39.8	60.1	0.14	1.28	12.3	13.6	1.18	4.82	6.00	—	17,481	17,481	0.58	0.56	3.10	17,666
2036	9.34	8.42	37.8	58.5	0.14	1.18	12.3	13.5	1.09	4.83	5.92	—	17,432	17,432	0.57	0.56	2.66	17,616
2037	8.89	8.02	35.7	55.8	0.13	1.11	11.9	13.0	1.02	4.65	5.67	—	16,682	16,682	0.54	0.53	2.18	16,856
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	2.02	1.80	9.98	12.8	0.02	0.37	2.24	2.61	0.34	0.88	1.22	—	3,041	3,041	0.10	0.12	1.24	3,082
2029	1.99	1.77	9.46	12.6	0.02	0.35	2.25	2.60	0.32	0.88	1.20	—	3,024	3,024	0.10	0.12	1.12	3,064
2030	1.95	1.72	9.12	12.5	0.02	0.34	2.25	2.58	0.31	0.88	1.19	—	3,000	3,000	0.10	0.12	1.00	3,039

2031	1.92	1.70	8.77	12.3	0.02	0.33	2.25	2.57	0.30	0.88	1.18	—	2,976	2,976	0.10	0.12	0.89	3,014
2032	1.87	1.66	8.25	11.8	0.02	0.30	2.25	2.55	0.27	0.88	1.15	—	2,961	2,961	0.10	0.10	0.78	2,994
2033	1.81	1.62	7.88	11.4	0.02	0.27	2.25	2.52	0.25	0.88	1.13	—	2,932	2,932	0.10	0.10	0.68	2,964
2034	1.78	1.60	7.64	11.3	0.02	0.26	2.25	2.50	0.24	0.88	1.12	—	2,912	2,912	0.10	0.10	0.59	2,943
2035	1.74	1.57	7.26	11.0	0.02	0.23	2.25	2.48	0.21	0.88	1.09	—	2,894	2,894	0.10	0.09	0.51	2,925
2036	1.70	1.54	6.90	10.7	0.02	0.22	2.25	2.47	0.20	0.88	1.08	—	2,886	2,886	0.09	0.09	0.44	2,917
2037	1.62	1.46	6.52	10.2	0.02	0.20	2.17	2.37	0.19	0.85	1.04	—	2,762	2,762	0.09	0.09	0.36	2,791

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.4	15.9	5.05	55.6	0.11	0.20	10.4	10.6	0.20	2.65	2.85	187	15,263	15,450	19.5	0.54	10.6	16,110
Mit.	16.4	15.9	5.04	55.6	0.11	0.20	10.4	10.6	0.20	2.65	2.84	187	15,250	15,436	19.5	0.54	10.6	16,097
% Reduced	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	1%	—	< 0.5%	1%	—	< 0.5%	—	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	14.4	13.9	5.25	33.5	0.10	0.19	10.4	10.6	0.19	2.65	2.84	187	14,632	14,819	19.6	0.57	2.86	15,479
Mit.	14.4	13.9	5.24	33.5	0.10	0.19	10.4	10.6	0.19	2.65	2.84	187	14,619	14,805	19.5	0.57	2.86	15,466
% Reduced	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	1%	—	< 0.5%	1%	—	< 0.5%	—	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	15.3	14.8	5.24	42.9	0.11	0.20	9.68	9.88	0.19	2.46	2.65	187	14,780	14,967	19.5	0.56	6.07	15,628
Mit.	15.3	14.8	5.22	42.9	0.11	0.20	9.68	9.88	0.19	2.46	2.65	187	14,767	14,953	19.5	0.56	6.07	15,615

% Reduced	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	1%	—	< 0.5%	1%	—	< 0.5%	—	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.79	2.70	0.96	7.84	0.02	0.04	1.77	1.80	0.04	0.45	0.48	30.9	2,447	2,478	3.24	0.09	1.00	2,587
Mit.	2.79	2.70	0.95	7.83	0.02	0.04	1.77	1.80	0.04	0.45	0.48	30.9	2,445	2,476	3.24	0.09	1.00	2,585
% Reduced	< 0.5%	< 0.5%	< 0.5%	< 0.5%	< 0.5%	1%	—	< 0.5%	1%	—	< 0.5%	—	< 0.5%	< 0.5%	< 0.5%	> -0.5%	—	< 0.5%

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	5.02	4.67	3.08	36.0	0.10	0.05	10.4	10.5	0.05	2.65	2.69	—	10,103	10,103	0.36	0.40	7.90	10,241
Area	11.2	11.1	0.17	18.7	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	52.8	52.8	< 0.005	< 0.005	—	52.9
Energy	0.21	0.10	1.80	0.87	0.01	0.14	—	0.14	0.14	—	0.14	—	4,706	4,706	0.38	0.03	—	4,723
Water	—	—	—	—	—	—	—	—	—	—	—	44.8	401	446	4.62	0.11	—	595
Waste	—	—	—	—	—	—	—	—	—	—	—	142	0.00	142	14.2	0.00	—	496
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.66	2.66
Total	16.4	15.9	5.05	55.6	0.11	0.20	10.4	10.6	0.20	2.65	2.85	187	15,263	15,450	19.5	0.54	10.6	16,110
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.88	4.52	3.45	32.6	0.09	0.05	10.4	10.5	0.05	2.65	2.69	—	9,525	9,525	0.39	0.43	0.20	9,663
Area	9.32	9.32	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	0.21	0.10	1.80	0.87	0.01	0.14	—	0.14	0.14	—	0.14	—	4,706	4,706	0.38	0.03	—	4,723
Water	—	—	—	—	—	—	—	—	—	—	—	44.8	401	446	4.62	0.11	—	595
Waste	—	—	—	—	—	—	—	—	—	—	—	142	0.00	142	14.2	0.00	—	496
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.66	2.66

Total	14.4	13.9	5.25	33.5	0.10	0.19	10.4	10.6	0.19	2.65	2.84	187	14,632	14,819	19.6	0.57	2.86	15,479
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.84	4.49	3.36	32.9	0.09	0.05	9.68	9.73	0.05	2.46	2.50	—	9,647	9,647	0.38	0.42	3.41	9,786
Area	10.3	10.2	0.08	9.21	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	0.00	26.0	26.0	< 0.005	< 0.005	—	26.1
Energy	0.21	0.10	1.80	0.87	0.01	0.14	—	0.14	0.14	—	0.14	—	4,706	4,706	0.38	0.03	—	4,723
Water	—	—	—	—	—	—	—	—	—	—	—	44.8	401	446	4.62	0.11	—	595
Waste	—	—	—	—	—	—	—	—	—	—	—	142	0.00	142	14.2	0.00	—	496
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.66	2.66
Total	15.3	14.8	5.24	42.9	0.11	0.20	9.68	9.88	0.19	2.46	2.65	187	14,780	14,967	19.5	0.56	6.07	15,628
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.88	0.82	0.61	6.00	0.02	0.01	1.77	1.78	0.01	0.45	0.46	—	1,597	1,597	0.06	0.07	0.56	1,620
Area	1.87	1.86	0.02	1.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	4.31	4.31	< 0.005	< 0.005	—	4.32
Energy	0.04	0.02	0.33	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	779	779	0.06	< 0.005	—	782
Water	—	—	—	—	—	—	—	—	—	—	—	7.42	66.4	73.8	0.77	0.02	—	98.5
Waste	—	—	—	—	—	—	—	—	—	—	—	23.5	0.00	23.5	2.34	0.00	—	82.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.44	0.44
Total	2.79	2.70	0.96	7.84	0.02	0.04	1.77	1.80	0.04	0.45	0.48	30.9	2,447	2,478	3.24	0.09	1.00	2,587

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	5.02	4.67	3.08	36.0	0.10	0.05	10.4	10.5	0.05	2.65	2.69	—	10,103	10,103	0.36	0.40	7.90	10,241
Area	11.2	11.1	0.17	18.7	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	52.8	52.8	< 0.005	< 0.005	—	52.9
Energy	0.21	0.10	1.78	0.86	0.01	0.14	—	0.14	0.14	—	0.14	—	4,693	4,693	0.38	0.03	—	4,710
Water	—	—	—	—	—	—	—	—	—	—	—	44.8	401	446	4.62	0.11	—	595

Waste	—	—	—	—	—	—	—	—	—	—	—	142	0.00	142	14.2	0.00	—	496
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.66	2.66
Total	16.4	15.9	5.04	55.6	0.11	0.20	10.4	10.6	0.20	2.65	2.84	187	15,250	15,436	19.5	0.54	10.6	16,097
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.88	4.52	3.45	32.6	0.09	0.05	10.4	10.5	0.05	2.65	2.69	—	9,525	9,525	0.39	0.43	0.20	9,663
Area	9.32	9.32	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	0.21	0.10	1.78	0.86	0.01	0.14	—	0.14	0.14	—	0.14	—	4,693	4,693	0.38	0.03	—	4,710
Water	—	—	—	—	—	—	—	—	—	—	—	44.8	401	446	4.62	0.11	—	595
Waste	—	—	—	—	—	—	—	—	—	—	—	142	0.00	142	14.2	0.00	—	496
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.66	2.66
Total	14.4	13.9	5.24	33.5	0.10	0.19	10.4	10.6	0.19	2.65	2.84	187	14,619	14,805	19.5	0.57	2.86	15,466
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.84	4.49	3.36	32.9	0.09	0.05	9.68	9.73	0.05	2.46	2.50	—	9,647	9,647	0.38	0.42	3.41	9,786
Area	10.3	10.2	0.08	9.21	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	0.00	26.0	26.0	< 0.005	< 0.005	—	26.1
Energy	0.21	0.10	1.78	0.86	0.01	0.14	—	0.14	0.14	—	0.14	—	4,693	4,693	0.38	0.03	—	4,710
Water	—	—	—	—	—	—	—	—	—	—	—	44.8	401	446	4.62	0.11	—	595
Waste	—	—	—	—	—	—	—	—	—	—	—	142	0.00	142	14.2	0.00	—	496
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.66	2.66
Total	15.3	14.8	5.22	42.9	0.11	0.20	9.68	9.88	0.19	2.46	2.65	187	14,767	14,953	19.5	0.56	6.07	15,615
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.88	0.82	0.61	6.00	0.02	0.01	1.77	1.78	0.01	0.45	0.46	—	1,597	1,597	0.06	0.07	0.56	1,620
Area	1.87	1.86	0.02	1.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	4.31	4.31	< 0.005	< 0.005	—	4.32
Energy	0.04	0.02	0.33	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	777	777	0.06	< 0.005	—	780
Water	—	—	—	—	—	—	—	—	—	—	—	7.42	66.4	73.8	0.77	0.02	—	98.5
Waste	—	—	—	—	—	—	—	—	—	—	—	23.5	0.00	23.5	2.34	0.00	—	82.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.44	0.44

Total	2.79	2.70	0.95	7.83	0.02	0.04	1.77	1.80	0.04	0.45	0.48	30.9	2,445	2,476	3.24	0.09	1.00	2,585

3. Construction Emissions Details

3.1. Site Preparation (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.50	2.94	26.5	26.4	0.05	1.12	—	1.12	1.03	—	1.03	—	5,010	5,010	0.20	0.04	—	5,027
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.87	4.87	< 0.005	< 0.005	0.01	5.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.50	2.94	26.5	26.4	0.05	1.12	—	1.12	1.03	—	1.03	—	5,010	5,010	0.20	0.04	—	5,027
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.90	4.90	< 0.005	< 0.005	< 0.005	5.15

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.49	2.10	18.9	18.8	0.03	0.80	—	0.80	0.73	—	0.73	—	3,569	3,569	0.14	0.03	—	3,581
Dust From Material Movement	—	—	—	—	—	—	5.46	5.46	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.48	3.48	< 0.005	< 0.005	< 0.005	3.66
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.46	0.38	3.44	3.44	0.01	0.15	—	0.15	0.13	—	0.13	—	591	591	0.02	< 0.005	—	593
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.58	0.58	< 0.005	< 0.005	< 0.005	0.61
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.15	0.14	2.32	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	529	529	0.01	0.02	1.58	536
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.08	0.02	1.55	0.49	0.01	0.03	0.37	0.40	0.03	0.10	0.13	—	1,303	1,303	0.04	0.21	2.75	1,369
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	0.16	1.86	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	491	491	0.01	0.02	0.04	496
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.07	0.02	1.64	0.49	0.01	0.03	0.37	0.40	0.03	0.10	0.13	—	1,304	1,304	0.04	0.21	0.07	1,367
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.11	1.38	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	355	355	0.01	0.01	0.49	360
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.15	0.35	0.01	0.02	0.25	0.27	0.02	0.07	0.09	—	928	928	0.03	0.15	0.85	974
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.25	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.8	58.8	< 0.005	< 0.005	0.08	59.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.21	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	154	154	0.01	0.02	0.14	161

3.2. Site Preparation (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.50	2.94	26.5	26.4	0.05	1.12	—	1.12	1.03	—	1.03	—	5,010	5,010	0.20	0.04	—	5,027
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.87	4.87	< 0.005	< 0.005	0.01	5.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	3.50	2.94	26.5	26.4	0.05	1.12	—	1.12	1.03	—	1.03	—	5,010	5,010	0.20	0.04	—	5,027
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.90	4.90	< 0.005	< 0.005	< 0.005	5.15
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.49	2.10	18.9	18.8	0.03	0.80	—	0.80	0.73	—	0.73	—	3,569	3,569	0.14	0.03	—	3,581
Dust From Material Movement	—	—	—	—	—	—	5.46	5.46	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.48	3.48	< 0.005	< 0.005	< 0.005	3.66
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.46	0.38	3.44	3.44	0.01	0.15	—	0.15	0.13	—	0.13	—	591	591	0.02	< 0.005	—	593
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.58	0.58	< 0.005	< 0.005	< 0.005	0.61
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.15	0.14	2.32	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	529	529	0.01	0.02	1.58	536

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.08	0.02	1.55	0.49	0.01	0.03	0.37	0.40	0.03	0.10	0.13	—	1,303	1,303	0.04	0.21	2.75	1,369
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	0.16	1.86	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	491	491	0.01	0.02	0.04	496
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.64	0.49	0.01	0.03	0.37	0.40	0.03	0.10	0.13	—	1,304	1,304	0.04	0.21	0.07	1,367
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.11	1.38	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	355	355	0.01	0.01	0.49	360
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.15	0.35	0.01	0.02	0.25	0.27	0.02	0.07	0.09	—	928	928	0.03	0.15	0.85	974
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.25	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.8	58.8	< 0.005	< 0.005	0.08	59.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.21	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	154	154	0.01	0.02	0.14	161

3.3. Site Preparation (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.42	2.88	25.0	26.2	0.05	1.06	—	1.06	0.98	—	0.98	—	5,006	5,006	0.20	0.04	—	5,023

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.76	4.76	< 0.005	< 0.005	0.01	5.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.42	2.88	25.0	26.2	0.05	1.06	—	1.06	0.98	—	0.98	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.80	4.80	< 0.005	< 0.005	< 0.005	5.04
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.44	2.05	17.9	18.7	0.03	0.76	—	0.76	0.70	—	0.70	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.41	3.41	< 0.005	< 0.005	< 0.005	3.58
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	0.37	3.26	3.41	0.01	0.14	—	0.14	0.13	—	0.13	—	592	592	0.02	< 0.005	—	594

Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.56	0.56	< 0.005	< 0.005	< 0.005	0.59
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	0.12	2.18	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	520	520	0.01	0.02	1.42	527
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.50	0.48	0.01	0.03	0.37	0.40	0.03	0.10	0.13	—	1,269	1,269	0.04	0.20	2.52	1,332
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.12	0.14	1.74	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	482	482	0.01	0.02	0.04	488
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.58	0.49	0.01	0.03	0.37	0.40	0.03	0.10	0.13	—	1,270	1,270	0.04	0.20	0.07	1,331
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.10	1.30	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	350	350	< 0.005	0.01	0.44	355
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.12	0.34	0.01	0.02	0.25	0.27	0.02	0.07	0.09	—	907	907	0.03	0.14	0.78	951
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.24	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.0	58.0	< 0.005	< 0.005	0.07	58.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.20	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	150	150	0.01	0.02	0.13	157

3.4. Site Preparation (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.42	2.88	25.0	26.2	0.05	1.06	—	1.06	0.98	—	0.98	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.76	4.76	< 0.005	< 0.005	0.01	5.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.42	2.88	25.0	26.2	0.05	1.06	—	1.06	0.98	—	0.98	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.80	4.80	< 0.005	< 0.005	< 0.005	5.04
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.44	2.05	17.9	18.7	0.03	0.76	—	0.76	0.70	—	0.70	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.41	3.41	< 0.005	< 0.005	< 0.005	3.58
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	0.37	3.26	3.41	0.01	0.14	—	0.14	0.13	—	0.13	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.56	0.56	< 0.005	< 0.005	< 0.005	0.59
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	0.12	2.18	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	520	520	0.01	0.02	1.42	527
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.50	0.48	0.01	0.03	0.37	0.40	0.03	0.10	0.13	—	1,269	1,269	0.04	0.20	2.52	1,332
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.12	0.14	1.74	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	482	482	0.01	0.02	0.04	488
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.58	0.49	0.01	0.03	0.37	0.40	0.03	0.10	0.13	—	1,270	1,270	0.04	0.20	0.07	1,331
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.10	1.30	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	350	350	< 0.005	0.01	0.44	355
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.12	0.34	0.01	0.02	0.25	0.27	0.02	0.07	0.09	—	907	907	0.03	0.14	0.78	951
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.24	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.0	58.0	< 0.005	< 0.005	0.07	58.7

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.20	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	150	150	0.01	0.02	0.13	157

3.5. Site Preparation (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.36	2.83	24.3	26.5	0.05	1.04	—	1.04	0.96	—	0.96	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.65	4.65	< 0.005	< 0.005	0.01	4.89
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.36	2.83	24.3	26.5	0.05	1.04	—	1.04	0.96	—	0.96	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.69	4.69	< 0.005	< 0.005	< 0.005	4.93
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	2.40	2.02	17.4	18.9	0.03	0.75	—	0.75	0.69	—	0.69	—	3,575	3,575	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.33	3.33	< 0.005	< 0.005	< 0.005	3.50
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.44	0.37	3.17	3.46	0.01	0.14	—	0.14	0.13	—	0.13	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.58
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.12	0.10	2.05	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	511	511	0.01	0.02	1.26	518
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.46	0.47	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,236	1,236	0.03	0.20	2.30	1,299
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.12	1.64	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	474	474	0.01	0.02	0.03	480
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.54	0.48	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,237	1,237	0.03	0.20	0.06	1,297
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.08	0.09	1.22	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	344	344	< 0.005	0.01	0.39	349

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.09	0.34	0.01	0.02	0.25	0.27	0.01	0.07	0.08	—	883	883	0.02	0.14	0.71	927
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	57.0	57.0	< 0.005	< 0.005	0.06	57.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.20	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	146	146	< 0.005	0.02	0.12	153

3.6. Site Preparation (2030) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.36	2.83	24.3	26.5	0.05	1.04	—	1.04	0.96	—	0.96	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.65	4.65	< 0.005	< 0.005	0.01	4.89
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.36	2.83	24.3	26.5	0.05	1.04	—	1.04	0.96	—	0.96	—	5,006	5,006	0.20	0.04	—	5,023

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.69	4.69	< 0.005	< 0.005	< 0.005	4.93
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.40	2.02	17.4	18.9	0.03	0.75	—	0.75	0.69	—	0.69	—	3,575	3,575	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.33	3.33	< 0.005	< 0.005	< 0.005	3.50
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.44	0.37	3.17	3.46	0.01	0.14	—	0.14	0.13	—	0.13	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.58
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.12	0.10	2.05	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	511	511	0.01	0.02	1.26	518
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.46	0.47	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,236	1,236	0.03	0.20	2.30	1,299

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.12	1.64	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	474	474	0.01	0.02	0.03	480
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.54	0.48	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,237	1,237	0.03	0.20	0.06	1,297
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.08	0.09	1.22	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	344	344	< 0.005	0.01	0.39	349
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.09	0.34	0.01	0.02	0.25	0.27	0.01	0.07	0.08	—	883	883	0.02	0.14	0.71	927
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	57.0	57.0	< 0.005	< 0.005	0.06	57.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.20	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	146	146	< 0.005	0.02	0.12	153

3.7. Site Preparation (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.31	2.78	23.4	26.0	0.05	1.02	—	1.02	0.94	—	0.94	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.55	4.55	< 0.005	< 0.005	0.01	4.79
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.31	2.78	23.4	26.0	0.05	1.02	—	1.02	0.94	—	0.94	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.59	4.59	< 0.005	< 0.005	< 0.005	4.82
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.36	1.99	16.7	18.6	0.03	0.73	—	0.73	0.67	—	0.67	—	3,575	3,575	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.26	3.26	< 0.005	< 0.005	< 0.005	3.43
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.36	3.05	3.39	0.01	0.13	—	0.13	0.12	—	0.12	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.54	0.54	< 0.005	< 0.005	< 0.005	0.57

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.10	1.92	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	503	503	0.01	< 0.005	1.12	505
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.42	0.45	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,203	1,203	0.03	0.19	2.08	1,263
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.12	1.54	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	467	467	0.01	0.02	0.03	472
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.50	0.46	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,204	1,204	0.03	0.19	0.05	1,262
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.09	1.15	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	339	339	< 0.005	0.01	0.35	343
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.06	0.33	0.01	0.02	0.25	0.27	0.01	0.07	0.08	—	860	860	0.02	0.14	0.64	902
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.21	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.1	56.1	< 0.005	< 0.005	0.06	56.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.19	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	142	142	< 0.005	0.02	0.11	149

3.8. Site Preparation (2031) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	3.31	2.78	23.4	26.0	0.05	1.02	—	1.02	0.94	—	0.94	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.55	4.55	< 0.005	< 0.005	0.01	4.79
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.31	2.78	23.4	26.0	0.05	1.02	—	1.02	0.94	—	0.94	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.59	4.59	< 0.005	< 0.005	< 0.005	4.82
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.36	1.99	16.7	18.6	0.03	0.73	—	0.73	0.67	—	0.67	—	3,575	3,575	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.26	3.26	< 0.005	< 0.005	< 0.005	3.43
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.36	3.05	3.39	0.01	0.13	—	0.13	0.12	—	0.12	—	592	592	0.02	< 0.005	—	594

Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.54	0.54	< 0.005	< 0.005	< 0.005	0.57
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.10	1.92	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	503	503	0.01	< 0.005	1.12	505
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.42	0.45	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,203	1,203	0.03	0.19	2.08	1,263
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.12	1.54	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	467	467	0.01	0.02	0.03	472
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.50	0.46	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,204	1,204	0.03	0.19	0.05	1,262
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.09	1.15	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	339	339	< 0.005	0.01	0.35	343
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.06	0.33	0.01	0.02	0.25	0.27	0.01	0.07	0.08	—	860	860	0.02	0.14	0.64	902
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.21	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.1	56.1	< 0.005	< 0.005	0.06	56.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.19	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	142	142	< 0.005	0.02	0.11	149

3.9. Site Preparation (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.11	2.62	21.4	23.8	0.05	0.91	—	0.91	0.83	—	0.83	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.46	4.46	< 0.005	< 0.005	< 0.005	4.69
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.11	2.62	21.4	23.8	0.05	0.91	—	0.91	0.83	—	0.83	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.50	4.50	< 0.005	< 0.005	< 0.005	4.72
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.23	1.87	15.3	17.1	0.03	0.65	—	0.65	0.60	—	0.60	—	3,585	3,585	0.15	0.03	—	3,598
Dust From Material Movement	—	—	—	—	—	—	5.49	5.49	—	2.82	2.82	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.20	3.20	< 0.005	< 0.005	< 0.005	3.37
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.34	2.80	3.12	0.01	0.12	—	0.12	0.11	—	0.11	—	594	594	0.02	< 0.005	—	596
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.52	0.52	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.53	0.53	< 0.005	< 0.005	< 0.005	0.56
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.08	1.81	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	496	496	< 0.005	< 0.005	0.99	497
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.38	0.45	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,172	1,172	0.03	0.19	1.87	1,232
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.10	1.45	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	460	460	0.01	0.02	0.03	466
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.46	0.45	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,173	1,173	0.03	0.19	0.05	1,231
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.07	1.08	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	335	335	< 0.005	< 0.005	0.31	336
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.03	0.32	0.01	0.02	0.25	0.27	0.01	0.07	0.08	—	840	840	0.02	0.14	0.58	882
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.01	0.20	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	55.4	55.4	< 0.005	< 0.005	0.05	55.6

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.19	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	139	139	< 0.005	0.02	0.10	146

3.10. Site Preparation (2032) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.11	2.62	21.4	23.8	0.05	0.91	—	0.91	0.83	—	0.83	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.46	4.46	< 0.005	< 0.005	< 0.005	4.69
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.11	2.62	21.4	23.8	0.05	0.91	—	0.91	0.83	—	0.83	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.50	4.50	< 0.005	< 0.005	< 0.005	4.72
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	2.23	1.87	15.3	17.1	0.03	0.65	—	0.65	0.60	—	0.60	—	3,585	3,585	0.15	0.03	—	3,598
Dust From Material Movement	—	—	—	—	—	—	5.49	5.49	—	2.82	2.82	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.20	3.20	< 0.005	< 0.005	< 0.005	3.37
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.34	2.80	3.12	0.01	0.12	—	0.12	0.11	—	0.11	—	594	594	0.02	< 0.005	—	596
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.52	0.52	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.53	0.53	< 0.005	< 0.005	< 0.005	0.56
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.08	1.81	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	496	496	< 0.005	< 0.005	0.99	497
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.38	0.45	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,172	1,172	0.03	0.19	1.87	1,232
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.10	1.45	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	460	460	0.01	0.02	0.03	466
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.46	0.45	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,173	1,173	0.03	0.19	0.05	1,231
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.07	1.08	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	335	335	< 0.005	< 0.005	0.31	336

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.03	0.32	0.01	0.02	0.25	0.27	0.01	0.07	0.08	—	840	840	0.02	0.14	0.58	882
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.01	0.20	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	55.4	55.4	< 0.005	< 0.005	0.05	55.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.19	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	139	139	< 0.005	0.02	0.10	146

3.11. Site Preparation (2033) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.02	2.54	20.3	22.5	0.05	0.85	—	0.85	0.78	—	0.78	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.37	4.37	< 0.005	< 0.005	< 0.005	4.60
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.02	2.54	20.3	22.5	0.05	0.85	—	0.85	0.78	—	0.78	—	5,006	5,006	0.20	0.04	—	5,023

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.41	4.41	< 0.005	< 0.005	< 0.005	4.63
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.16	1.81	14.5	16.0	0.03	0.60	—	0.60	0.56	—	0.56	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.14	3.14	< 0.005	< 0.005	< 0.005	3.29
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.39	0.33	2.65	2.93	0.01	0.11	—	0.11	0.10	—	0.10	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.52	0.52	< 0.005	< 0.005	< 0.005	0.55
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.11	0.08	1.71	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	489	489	< 0.005	< 0.005	0.87	491
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.34	0.44	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,144	1,144	0.03	0.18	1.64	1,201

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.10	1.37	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	454	454	0.01	< 0.005	0.02	455
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.42	0.44	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,145	1,145	0.03	0.18	0.04	1,200
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	1.02	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	330	330	< 0.005	< 0.005	0.27	330
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.00	0.31	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	818	818	0.02	0.13	0.51	857
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.19	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	54.6	54.6	< 0.005	< 0.005	0.04	54.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.18	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	135	135	< 0.005	0.02	0.08	142

3.12. Site Preparation (2033) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.02	2.54	20.3	22.5	0.05	0.85	—	0.85	0.78	—	0.78	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.37	4.37	< 0.005	< 0.005	< 0.005	4.60
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.02	2.54	20.3	22.5	0.05	0.85	—	0.85	0.78	—	0.78	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.41	4.41	< 0.005	< 0.005	< 0.005	4.63
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.16	1.81	14.5	16.0	0.03	0.60	—	0.60	0.56	—	0.56	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.14	3.14	< 0.005	< 0.005	< 0.005	3.29
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.39	0.33	2.65	2.93	0.01	0.11	—	0.11	0.10	—	0.10	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.52	0.52	< 0.005	< 0.005	< 0.005	0.55

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.11	0.08	1.71	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	489	489	< 0.005	< 0.005	0.87	491
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.34	0.44	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,144	1,144	0.03	0.18	1.64	1,201
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.10	1.37	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	454	454	0.01	< 0.005	0.02	455
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.42	0.44	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,145	1,145	0.03	0.18	0.04	1,200
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	1.02	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	330	330	< 0.005	< 0.005	0.27	330
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.00	0.31	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	818	818	0.02	0.13	0.51	857
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.19	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	54.6	54.6	< 0.005	< 0.005	0.04	54.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.18	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	135	135	< 0.005	0.02	0.08	142

3.13. Site Preparation (2034) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	2.96	2.49	19.7	22.2	0.05	0.80	—	0.80	0.74	—	0.74	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.30	4.30	< 0.005	< 0.005	< 0.005	4.52
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.96	2.49	19.7	22.2	0.05	0.80	—	0.80	0.74	—	0.74	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.34	4.34	< 0.005	< 0.005	< 0.005	4.56
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.11	1.78	14.1	15.8	0.03	0.57	—	0.57	0.53	—	0.53	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.08	3.08	< 0.005	< 0.005	< 0.005	3.24
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.39	0.32	2.57	2.89	0.01	0.10	—	0.10	0.10	—	0.10	—	592	592	0.02	< 0.005	—	594

Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.51	0.51	< 0.005	< 0.005	< 0.005	0.54
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.07	1.62	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	483	483	< 0.005	< 0.005	0.76	485
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.31	0.42	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,119	1,119	0.03	0.18	1.44	1,175
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.09	1.29	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	448	448	0.01	< 0.005	0.02	449
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.39	0.43	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,120	1,120	0.03	0.18	0.04	1,175
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.96	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	325	325	< 0.005	< 0.005	0.23	326
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	0.98	0.30	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	800	800	0.02	0.13	0.44	839
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.18	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	53.9	53.9	< 0.005	< 0.005	0.04	54.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.18	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	132	132	< 0.005	0.02	0.07	139

3.14. Site Preparation (2034) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.96	2.49	19.7	22.2	0.05	0.80	—	0.80	0.74	—	0.74	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.30	4.30	< 0.005	< 0.005	< 0.005	4.52
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.96	2.49	19.7	22.2	0.05	0.80	—	0.80	0.74	—	0.74	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.34	4.34	< 0.005	< 0.005	< 0.005	4.56
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.11	1.78	14.1	15.8	0.03	0.57	—	0.57	0.53	—	0.53	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.08	3.08	< 0.005	< 0.005	< 0.005	3.24
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.39	0.32	2.57	2.89	0.01	0.10	—	0.10	0.10	—	0.10	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.51	0.51	< 0.005	< 0.005	< 0.005	0.54
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.07	1.62	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	483	483	< 0.005	< 0.005	0.76	485
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.31	0.42	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,119	1,119	0.03	0.18	1.44	1,175
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.09	1.29	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	448	448	0.01	< 0.005	0.02	449
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.39	0.43	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,120	1,120	0.03	0.18	0.04	1,175
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.96	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	325	325	< 0.005	< 0.005	0.23	326
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	0.98	0.30	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	800	800	0.02	0.13	0.44	839
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.18	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	53.9	53.9	< 0.005	< 0.005	0.04	54.0

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.18	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	132	132	< 0.005	0.02	0.07	139

3.15. Site Preparation (2035) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.83	2.38	18.3	21.0	0.05	0.72	—	0.72	0.67	—	0.67	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.23	4.23	< 0.005	< 0.005	< 0.005	4.45
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.83	2.38	18.3	21.0	0.05	0.72	—	0.72	0.67	—	0.67	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.27	4.27	< 0.005	< 0.005	< 0.005	4.48
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	2.02	1.70	13.1	15.0	0.03	0.52	—	0.52	0.48	—	0.48	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.03	3.03	< 0.005	< 0.005	< 0.005	3.19
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	0.31	2.39	2.73	0.01	0.09	—	0.09	0.09	—	0.09	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.50	0.50	< 0.005	< 0.005	< 0.005	0.53
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.07	1.54	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	478	478	< 0.005	< 0.005	0.66	479
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.29	0.41	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,097	1,097	0.02	0.17	1.24	1,150
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.09	1.23	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	443	443	< 0.005	< 0.005	0.02	444
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.36	0.42	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,098	1,098	0.02	0.17	0.03	1,150
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.92	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	322	322	< 0.005	< 0.005	0.20	323

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	0.96	0.30	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	784	784	0.02	0.12	0.38	821
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.17	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	53.3	53.3	< 0.005	< 0.005	0.03	53.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.18	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	130	130	< 0.005	0.02	0.06	136

3.16. Site Preparation (2035) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.83	2.38	18.3	21.0	0.05	0.72	—	0.72	0.67	—	0.67	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.23	4.23	< 0.005	< 0.005	< 0.005	4.45
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.83	2.38	18.3	21.0	0.05	0.72	—	0.72	0.67	—	0.67	—	5,006	5,006	0.20	0.04	—	5,023

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.27	4.27	< 0.005	< 0.005	< 0.005	4.48
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.02	1.70	13.1	15.0	0.03	0.52	—	0.52	0.48	—	0.48	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.03	3.03	< 0.005	< 0.005	< 0.005	3.19
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	0.31	2.39	2.73	0.01	0.09	—	0.09	0.09	—	0.09	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.50	0.50	< 0.005	< 0.005	< 0.005	0.53
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.07	1.54	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	478	478	< 0.005	< 0.005	0.66	479
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.29	0.41	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,097	1,097	0.02	0.17	1.24	1,150

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.09	1.23	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	443	443	< 0.005	< 0.005	0.02	444
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.36	0.42	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,098	1,098	0.02	0.17	0.03	1,150
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.92	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	322	322	< 0.005	< 0.005	0.20	323
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	0.96	0.30	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	784	784	0.02	0.12	0.38	821
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.17	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	53.3	53.3	< 0.005	< 0.005	0.03	53.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.18	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	130	130	< 0.005	0.02	0.06	136

3.17. Site Preparation (2036) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.69	2.26	17.2	19.8	0.05	0.66	—	0.66	0.61	—	0.61	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.17	4.17	< 0.005	< 0.005	< 0.005	4.38
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.69	2.26	17.2	19.8	0.05	0.66	—	0.66	0.61	—	0.61	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.21	4.21	< 0.005	< 0.005	< 0.005	4.43
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.93	1.62	12.3	14.2	0.03	0.47	—	0.47	0.43	—	0.43	—	3,585	3,585	0.15	0.03	—	3,598
Dust From Material Movement	—	—	—	—	—	—	5.49	5.49	—	2.82	2.82	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.00	3.00	< 0.005	< 0.005	< 0.005	3.16
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.30	2.24	2.59	0.01	0.09	—	0.09	0.08	—	0.08	—	594	594	0.02	< 0.005	—	596
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.52	0.52	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.50	0.50	< 0.005	< 0.005	< 0.005	0.52

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.07	1.47	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	473	473	< 0.005	< 0.005	0.57	474
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.26	0.41	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,077	1,077	0.02	0.17	1.07	1,130
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.08	1.17	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	439	439	< 0.005	< 0.005	0.01	440
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.34	0.41	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,078	1,078	0.02	0.17	0.03	1,130
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.05	0.88	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	319	319	< 0.005	< 0.005	0.18	320
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.94	0.29	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	772	772	0.02	0.12	0.33	809
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	52.9	52.9	< 0.005	< 0.005	0.03	53.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.17	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	128	128	< 0.005	0.02	0.05	134

3.18. Site Preparation (2036) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	2.69	2.26	17.2	19.8	0.05	0.66	—	0.66	0.61	—	0.61	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.17	4.17	< 0.005	< 0.005	< 0.005	4.38
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.69	2.26	17.2	19.8	0.05	0.66	—	0.66	0.61	—	0.61	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.21	4.21	< 0.005	< 0.005	< 0.005	4.43
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.93	1.62	12.3	14.2	0.03	0.47	—	0.47	0.43	—	0.43	—	3,585	3,585	0.15	0.03	—	3,598
Dust From Material Movement	—	—	—	—	—	—	5.49	5.49	—	2.82	2.82	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.00	3.00	< 0.005	< 0.005	< 0.005	3.16
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.30	2.24	2.59	0.01	0.09	—	0.09	0.08	—	0.08	—	594	594	0.02	< 0.005	—	596

Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.52	0.52	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.50	0.50	< 0.005	< 0.005	< 0.005	0.52
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.07	1.47	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	473	473	< 0.005	< 0.005	0.57	474
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.26	0.41	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,077	1,077	0.02	0.17	1.07	1,130
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.08	1.17	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	439	439	< 0.005	< 0.005	0.01	440
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.34	0.41	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,078	1,078	0.02	0.17	0.03	1,130
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.05	0.88	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	319	319	< 0.005	< 0.005	0.18	320
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.94	0.29	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	772	772	0.02	0.12	0.33	809
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	52.9	52.9	< 0.005	< 0.005	0.03	53.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.17	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	128	128	< 0.005	0.02	0.05	134

3.19. Site Preparation (2037) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.70	2.27	17.2	20.0	0.05	0.67	—	0.67	0.62	—	0.62	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.13	4.13	< 0.005	< 0.005	< 0.005	4.33
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.70	2.27	17.2	20.0	0.05	0.67	—	0.67	0.62	—	0.62	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.17	4.17	< 0.005	< 0.005	< 0.005	4.38
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.86	1.56	11.9	13.8	0.03	0.46	—	0.46	0.42	—	0.42	—	3,448	3,448	0.14	0.03	—	3,460
Dust From Material Movement	—	—	—	—	—	—	5.28	5.28	—	2.71	2.71	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.85	2.85	< 0.005	< 0.005	< 0.005	3.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.34	0.28	2.17	2.52	0.01	0.08	—	0.08	0.08	—	0.08	—	571	571	0.02	< 0.005	—	573
Dust From Material Movement	—	—	—	—	—	—	0.96	0.96	—	0.50	0.50	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.07	1.41	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	469	469	< 0.005	< 0.005	0.49	470
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.24	0.40	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,060	1,060	0.02	0.17	0.92	1,113
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.07	1.12	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	435	435	< 0.005	< 0.005	0.01	436
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.31	0.40	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,061	1,061	0.02	0.17	0.02	1,113
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.80	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	304	304	< 0.005	< 0.005	0.14	305
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.90	0.28	0.01	0.01	0.24	0.25	0.01	0.07	0.08	—	731	731	0.02	0.12	0.27	767
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.15	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	50.4	50.4	< 0.005	< 0.005	0.02	50.5

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	121	121	< 0.005	0.02	0.05	127

3.20. Site Preparation (2037) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.70	2.27	17.2	20.0	0.05	0.67	—	0.67	0.62	—	0.62	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.13	4.13	< 0.005	< 0.005	< 0.005	4.33
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.70	2.27	17.2	20.0	0.05	0.67	—	0.67	0.62	—	0.62	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.17	4.17	< 0.005	< 0.005	< 0.005	4.38
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	1.86	1.56	11.9	13.8	0.03	0.46	—	0.46	0.42	—	0.42	—	3,448	3,448	0.14	0.03	—	3,460
Dust From Material Movement	—	—	—	—	—	—	5.28	5.28	—	2.71	2.71	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.85	2.85	< 0.005	< 0.005	< 0.005	3.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.34	0.28	2.17	2.52	0.01	0.08	—	0.08	0.08	—	0.08	—	571	571	0.02	< 0.005	—	573
Dust From Material Movement	—	—	—	—	—	—	0.96	0.96	—	0.50	0.50	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.07	1.41	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	469	469	< 0.005	< 0.005	0.49	470
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.24	0.40	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,060	1,060	0.02	0.17	0.92	1,113
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.07	1.12	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	435	435	< 0.005	< 0.005	0.01	436
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.31	0.40	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,061	1,061	0.02	0.17	0.02	1,113
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.80	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	304	304	< 0.005	< 0.005	0.14	305

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.90	0.28	0.01	0.01	0.24	0.25	0.01	0.07	0.08	—	731	731	0.02	0.12	0.27	767
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.15	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	50.4	50.4	< 0.005	< 0.005	0.02	50.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	121	121	< 0.005	0.02	0.05	127

3.21. Grading (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.43	2.88	24.3	27.2	0.06	0.99	—	0.99	0.91	—	0.91	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.87	4.87	< 0.005	< 0.005	0.01	5.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.43	2.88	24.3	27.2	0.06	0.99	—	0.99	0.91	—	0.91	—	6,598	6,598	0.27	0.05	—	6,621

Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.90	4.90	< 0.005	< 0.005	< 0.005	5.15
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.44	2.05	17.3	19.4	0.04	0.70	—	0.70	0.65	—	0.65	—	4,700	4,700	0.19	0.04	—	4,716
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.48	3.48	< 0.005	< 0.005	< 0.005	3.66
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	0.37	3.16	3.53	0.01	0.13	—	0.13	0.12	—	0.12	—	778	778	0.03	0.01	—	781
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.58	0.58	< 0.005	< 0.005	< 0.005	0.61
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.15	0.14	2.32	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	529	529	0.01	0.02	1.58	536
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.08	0.02	1.55	0.49	0.01	0.03	0.37	0.40	0.03	0.10	0.13	—	1,303	1,303	0.04	0.21	2.75	1,369

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	0.16	1.86	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	491	491	0.01	0.02	0.04	496
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.64	0.49	0.01	0.03	0.37	0.40	0.03	0.10	0.13	—	1,304	1,304	0.04	0.21	0.07	1,367
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.11	1.38	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	355	355	0.01	0.01	0.49	360
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.15	0.35	0.01	0.02	0.25	0.27	0.02	0.07	0.09	—	928	928	0.03	0.15	0.85	974
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.25	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.8	58.8	< 0.005	< 0.005	0.08	59.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.21	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	154	154	0.01	0.02	0.14	161

3.22. Grading (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.43	2.88	24.3	27.2	0.06	0.99	—	0.99	0.91	—	0.91	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.87	4.87	< 0.005	< 0.005	0.01	5.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.43	2.88	24.3	27.2	0.06	0.99	—	0.99	0.91	—	0.91	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.90	4.90	< 0.005	< 0.005	< 0.005	5.15
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.44	2.05	17.3	19.4	0.04	0.70	—	0.70	0.65	—	0.65	—	4,700	4,700	0.19	0.04	—	4,716
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.48	3.48	< 0.005	< 0.005	< 0.005	3.66
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	0.37	3.16	3.53	0.01	0.13	—	0.13	0.12	—	0.12	—	778	778	0.03	0.01	—	781
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.58	0.58	< 0.005	< 0.005	< 0.005	0.61

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.15	0.14	2.32	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	529	529	0.01	0.02	1.58	536
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.08	0.02	1.55	0.49	0.01	0.03	0.37	0.40	0.03	0.10	0.13	—	1,303	1,303	0.04	0.21	2.75	1,369
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	0.16	1.86	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	491	491	0.01	0.02	0.04	496
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.64	0.49	0.01	0.03	0.37	0.40	0.03	0.10	0.13	—	1,304	1,304	0.04	0.21	0.07	1,367
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.11	1.38	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	355	355	0.01	0.01	0.49	360
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.15	0.35	0.01	0.02	0.25	0.27	0.02	0.07	0.09	—	928	928	0.03	0.15	0.85	974
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.25	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.8	58.8	< 0.005	< 0.005	0.08	59.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.21	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	154	154	0.01	0.02	0.14	161

3.23. Grading (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	3.32	2.79	22.7	26.9	0.06	0.92	—	0.92	0.84	—	0.84	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.76	4.76	< 0.005	< 0.005	0.01	5.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.32	2.79	22.7	26.9	0.06	0.92	—	0.92	0.84	—	0.84	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.80	4.80	< 0.005	< 0.005	< 0.005	5.04
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.37	1.99	16.2	19.2	0.04	0.65	—	0.65	0.60	—	0.60	—	4,712	4,712	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.41	3.41	< 0.005	< 0.005	< 0.005	3.58
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.36	2.96	3.50	0.01	0.12	—	0.12	0.11	—	0.11	—	780	780	0.03	0.01	—	783

Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.56	0.56	< 0.005	< 0.005	< 0.005	0.59
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	0.12	2.18	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	520	520	0.01	0.02	1.42	527
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.50	0.48	0.01	0.03	0.37	0.40	0.03	0.10	0.13	—	1,269	1,269	0.04	0.20	2.52	1,332
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.12	0.14	1.74	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	482	482	0.01	0.02	0.04	488
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.58	0.49	0.01	0.03	0.37	0.40	0.03	0.10	0.13	—	1,270	1,270	0.04	0.20	0.07	1,331
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.10	1.30	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	350	350	< 0.005	0.01	0.44	355
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.12	0.34	0.01	0.02	0.25	0.27	0.02	0.07	0.09	—	907	907	0.03	0.14	0.78	951
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.24	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.0	58.0	< 0.005	< 0.005	0.07	58.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.20	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	150	150	0.01	0.02	0.13	157

3.24. Grading (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.32	2.79	22.7	26.9	0.06	0.92	—	0.92	0.84	—	0.84	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.76	4.76	< 0.005	< 0.005	0.01	5.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.32	2.79	22.7	26.9	0.06	0.92	—	0.92	0.84	—	0.84	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.80	4.80	< 0.005	< 0.005	< 0.005	5.04
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.37	1.99	16.2	19.2	0.04	0.65	—	0.65	0.60	—	0.60	—	4,712	4,712	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.41	3.41	< 0.005	< 0.005	< 0.005	3.58
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.36	2.96	3.50	0.01	0.12	—	0.12	0.11	—	0.11	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.56	0.56	< 0.005	< 0.005	< 0.005	0.59
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	0.12	2.18	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	520	520	0.01	0.02	1.42	527
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.50	0.48	0.01	0.03	0.37	0.40	0.03	0.10	0.13	—	1,269	1,269	0.04	0.20	2.52	1,332
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.12	0.14	1.74	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	482	482	0.01	0.02	0.04	488
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.58	0.49	0.01	0.03	0.37	0.40	0.03	0.10	0.13	—	1,270	1,270	0.04	0.20	0.07	1,331
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.10	1.30	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	350	350	< 0.005	0.01	0.44	355
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.12	0.34	0.01	0.02	0.25	0.27	0.02	0.07	0.09	—	907	907	0.03	0.14	0.78	951
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.24	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.0	58.0	< 0.005	< 0.005	0.07	58.7

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.20	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	150	150	0.01	0.02	0.13	157

3.25. Grading (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.23	2.72	21.7	26.9	0.06	0.88	—	0.88	0.81	—	0.81	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.65	4.65	< 0.005	< 0.005	0.01	4.89
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.23	2.72	21.7	26.9	0.06	0.88	—	0.88	0.81	—	0.81	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.69	4.69	< 0.005	< 0.005	< 0.005	4.93
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	2.31	1.94	15.5	19.2	0.04	0.63	—	0.63	0.58	—	0.58	—	4,711	4,711	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.33	3.33	< 0.005	< 0.005	< 0.005	3.50
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42	0.35	2.82	3.50	0.01	0.12	—	0.12	0.11	—	0.11	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.58
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.12	0.10	2.05	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	511	511	0.01	0.02	1.26	518
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.46	0.47	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,236	1,236	0.03	0.20	2.30	1,299
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.12	1.64	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	474	474	0.01	0.02	0.03	480
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.54	0.48	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,237	1,237	0.03	0.20	0.06	1,297
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.08	0.09	1.22	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	344	344	< 0.005	0.01	0.39	349

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.09	0.34	0.01	0.02	0.25	0.27	0.01	0.07	0.08	—	883	883	0.02	0.14	0.71	927
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	57.0	57.0	< 0.005	< 0.005	0.06	57.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.20	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	146	146	< 0.005	0.02	0.12	153

3.26. Grading (2030) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.23	2.72	21.7	26.9	0.06	0.88	—	0.88	0.81	—	0.81	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.65	4.65	< 0.005	< 0.005	0.01	4.89
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.23	2.72	21.7	26.9	0.06	0.88	—	0.88	0.81	—	0.81	—	6,596	6,596	0.27	0.05	—	6,619

Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.69	4.69	< 0.005	< 0.005	< 0.005	4.93
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.31	1.94	15.5	19.2	0.04	0.63	—	0.63	0.58	—	0.58	—	4,711	4,711	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.33	3.33	< 0.005	< 0.005	< 0.005	3.50
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42	0.35	2.82	3.50	0.01	0.12	—	0.12	0.11	—	0.11	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.58
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.12	0.10	2.05	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	511	511	0.01	0.02	1.26	518
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.46	0.47	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,236	1,236	0.03	0.20	2.30	1,299

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.12	1.64	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	474	474	0.01	0.02	0.03	480
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.54	0.48	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,237	1,237	0.03	0.20	0.06	1,297
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.08	0.09	1.22	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	344	344	< 0.005	0.01	0.39	349
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.09	0.34	0.01	0.02	0.25	0.27	0.01	0.07	0.08	—	883	883	0.02	0.14	0.71	927
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	57.0	57.0	< 0.005	< 0.005	0.06	57.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.20	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	146	146	< 0.005	0.02	0.12	153

3.27. Grading (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.17	2.66	20.6	26.6	0.06	0.86	—	0.86	0.79	—	0.79	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.55	4.55	< 0.005	< 0.005	0.01	4.79
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.17	2.66	20.6	26.6	0.06	0.86	—	0.86	0.79	—	0.79	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.59	4.59	< 0.005	< 0.005	< 0.005	4.82
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.26	1.90	14.7	19.0	0.04	0.61	—	0.61	0.56	—	0.56	—	4,711	4,711	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.26	3.26	< 0.005	< 0.005	< 0.005	3.43
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.35	2.69	3.47	0.01	0.11	—	0.11	0.10	—	0.10	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.54	0.54	< 0.005	< 0.005	< 0.005	0.57

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.10	1.92	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	503	503	0.01	< 0.005	1.12	505
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.42	0.45	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,203	1,203	0.03	0.19	2.08	1,263
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.12	1.54	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	467	467	0.01	0.02	0.03	472
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.50	0.46	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,204	1,204	0.03	0.19	0.05	1,262
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.09	1.15	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	339	339	< 0.005	0.01	0.35	343
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.06	0.33	0.01	0.02	0.25	0.27	0.01	0.07	0.08	—	860	860	0.02	0.14	0.64	902
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.21	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.1	56.1	< 0.005	< 0.005	0.06	56.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.19	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	142	142	< 0.005	0.02	0.11	149

3.28. Grading (2031) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	3.17	2.66	20.6	26.6	0.06	0.86	—	0.86	0.79	—	0.79	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.55	4.55	< 0.005	< 0.005	0.01	4.79
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.17	2.66	20.6	26.6	0.06	0.86	—	0.86	0.79	—	0.79	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.59	4.59	< 0.005	< 0.005	< 0.005	4.82
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.26	1.90	14.7	19.0	0.04	0.61	—	0.61	0.56	—	0.56	—	4,711	4,711	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.26	3.26	< 0.005	< 0.005	< 0.005	3.43
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.35	2.69	3.47	0.01	0.11	—	0.11	0.10	—	0.10	—	780	780	0.03	0.01	—	783

Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.54	0.54	< 0.005	< 0.005	< 0.005	0.57
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.10	1.92	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	503	503	0.01	< 0.005	1.12	505
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.42	0.45	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,203	1,203	0.03	0.19	2.08	1,263
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.12	1.54	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	467	467	0.01	0.02	0.03	472
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	0.02	1.50	0.46	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,204	1,204	0.03	0.19	0.05	1,262
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.09	1.15	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	339	339	< 0.005	0.01	0.35	343
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.06	0.33	0.01	0.02	0.25	0.27	0.01	0.07	0.08	—	860	860	0.02	0.14	0.64	902
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.21	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.1	56.1	< 0.005	< 0.005	0.06	56.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.19	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	142	142	< 0.005	0.02	0.11	149

3.29. Grading (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.05	2.56	19.4	25.8	0.06	0.79	—	0.79	0.73	—	0.73	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.46	4.46	< 0.005	< 0.005	< 0.005	4.69
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.05	2.56	19.4	25.8	0.06	0.79	—	0.79	0.73	—	0.73	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.50	4.50	< 0.005	< 0.005	< 0.005	4.72
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.18	1.84	13.9	18.5	0.04	0.57	—	0.57	0.52	—	0.52	—	4,724	4,724	0.19	0.04	—	4,741
Dust From Material Movement	—	—	—	—	—	—	2.57	2.57	—	1.02	1.02	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.20	3.20	< 0.005	< 0.005	< 0.005	3.37
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	0.33	2.54	3.37	0.01	0.10	—	0.10	0.10	—	0.10	—	782	782	0.03	0.01	—	785
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.53	0.53	< 0.005	< 0.005	< 0.005	0.56
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.08	1.81	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	496	496	< 0.005	< 0.005	0.99	497
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.38	0.45	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,172	1,172	0.03	0.19	1.87	1,232
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.10	1.45	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	460	460	0.01	0.02	0.03	466
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.46	0.45	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,173	1,173	0.03	0.19	0.05	1,231
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.07	1.08	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	335	335	< 0.005	< 0.005	0.31	336
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.03	0.32	0.01	0.02	0.25	0.27	0.01	0.07	0.08	—	840	840	0.02	0.14	0.58	882
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.01	0.20	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	55.4	55.4	< 0.005	< 0.005	0.05	55.6

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.19	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	139	139	< 0.005	0.02	0.10	146

3.30. Grading (2032) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.05	2.56	19.4	25.8	0.06	0.79	—	0.79	0.73	—	0.73	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.46	4.46	< 0.005	< 0.005	< 0.005	4.69
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.05	2.56	19.4	25.8	0.06	0.79	—	0.79	0.73	—	0.73	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.50	4.50	< 0.005	< 0.005	< 0.005	4.72
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	2.18	1.84	13.9	18.5	0.04	0.57	—	0.57	0.52	—	0.52	—	4,724	4,724	0.19	0.04	—	4,741
Dust From Material Movement	—	—	—	—	—	—	2.57	2.57	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.20	3.20	< 0.005	< 0.005	< 0.005	3.37
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	0.33	2.54	3.37	0.01	0.10	—	0.10	0.10	—	0.10	—	782	782	0.03	0.01	—	785
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.53	0.53	< 0.005	< 0.005	< 0.005	0.56
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.08	1.81	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	496	496	< 0.005	< 0.005	0.99	497
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.38	0.45	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,172	1,172	0.03	0.19	1.87	1,232
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.10	1.45	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	460	460	0.01	0.02	0.03	466
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.46	0.45	0.01	0.03	0.37	0.40	0.02	0.10	0.12	—	1,173	1,173	0.03	0.19	0.05	1,231
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.07	1.08	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	335	335	< 0.005	< 0.005	0.31	336

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.03	0.32	0.01	0.02	0.25	0.27	0.01	0.07	0.08	—	840	840	0.02	0.14	0.58	882
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.01	0.20	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	55.4	55.4	< 0.005	< 0.005	0.05	55.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.19	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	139	139	< 0.005	0.02	0.10	146

3.31. Grading (2033) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.97	2.50	18.5	25.2	0.06	0.73	—	0.73	0.68	—	0.68	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.37	4.37	< 0.005	< 0.005	< 0.005	4.60
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.97	2.50	18.5	25.2	0.06	0.73	—	0.73	0.68	—	0.68	—	6,596	6,596	0.27	0.05	—	6,619

Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.41	4.41	< 0.005	< 0.005	< 0.005	4.63
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.12	1.79	13.2	18.0	0.04	0.52	—	0.52	0.48	—	0.48	—	4,712	4,712	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.14	3.14	< 0.005	< 0.005	< 0.005	3.29
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.39	0.33	2.42	3.29	0.01	0.10	—	0.10	0.09	—	0.09	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.52	0.52	< 0.005	< 0.005	< 0.005	0.55
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.11	0.08	1.71	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	489	489	< 0.005	< 0.005	0.87	491
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.34	0.44	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,144	1,144	0.03	0.18	1.64	1,201

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.10	1.37	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	454	454	0.01	< 0.005	0.02	455
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.42	0.44	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,145	1,145	0.03	0.18	0.04	1,200
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	1.02	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	330	330	< 0.005	< 0.005	0.27	330
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.00	0.31	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	818	818	0.02	0.13	0.51	857
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.19	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	54.6	54.6	< 0.005	< 0.005	0.04	54.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.18	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	135	135	< 0.005	0.02	0.08	142

3.32. Grading (2033) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.97	2.50	18.5	25.2	0.06	0.73	—	0.73	0.68	—	0.68	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.37	4.37	< 0.005	< 0.005	< 0.005	4.60
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.97	2.50	18.5	25.2	0.06	0.73	—	0.73	0.68	—	0.68	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.41	4.41	< 0.005	< 0.005	< 0.005	4.63
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.12	1.79	13.2	18.0	0.04	0.52	—	0.52	0.48	—	0.48	—	4,712	4,712	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.14	3.14	< 0.005	< 0.005	< 0.005	3.29
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.39	0.33	2.42	3.29	0.01	0.10	—	0.10	0.09	—	0.09	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.52	0.52	< 0.005	< 0.005	< 0.005	0.55

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.11	0.08	1.71	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	489	489	< 0.005	< 0.005	0.87	491
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.34	0.44	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,144	1,144	0.03	0.18	1.64	1,201
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.10	1.37	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	454	454	0.01	< 0.005	0.02	455
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.42	0.44	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,145	1,145	0.03	0.18	0.04	1,200
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	1.02	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	330	330	< 0.005	< 0.005	0.27	330
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.00	0.31	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	818	818	0.02	0.13	0.51	857
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.19	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	54.6	54.6	< 0.005	< 0.005	0.04	54.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.18	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	135	135	< 0.005	0.02	0.08	142

3.33. Grading (2034) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	2.90	2.44	17.8	25.1	0.06	0.68	—	0.68	0.62	—	0.62	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.30	4.30	< 0.005	< 0.005	< 0.005	4.52
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.90	2.44	17.8	25.1	0.06	0.68	—	0.68	0.62	—	0.62	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.34	4.34	< 0.005	< 0.005	< 0.005	4.56
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.07	1.74	12.7	17.9	0.04	0.48	—	0.48	0.45	—	0.45	—	4,712	4,712	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.08	3.08	< 0.005	< 0.005	< 0.005	3.24
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.38	0.32	2.31	3.27	0.01	0.09	—	0.09	0.08	—	0.08	—	780	780	0.03	0.01	—	783

Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.51	0.51	< 0.005	< 0.005	< 0.005	0.54
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.07	1.62	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	483	483	< 0.005	< 0.005	0.76	485
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.31	0.42	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,119	1,119	0.03	0.18	1.44	1,175
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.09	1.29	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	448	448	0.01	< 0.005	0.02	449
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.39	0.43	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,120	1,120	0.03	0.18	0.04	1,175
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.96	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	325	325	< 0.005	< 0.005	0.23	326
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	0.98	0.30	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	800	800	0.02	0.13	0.44	839
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.18	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	53.9	53.9	< 0.005	< 0.005	0.04	54.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.18	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	132	132	< 0.005	0.02	0.07	139

3.34. Grading (2034) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.90	2.44	17.8	25.1	0.06	0.68	—	0.68	0.62	—	0.62	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.30	4.30	< 0.005	< 0.005	< 0.005	4.52
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.90	2.44	17.8	25.1	0.06	0.68	—	0.68	0.62	—	0.62	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.34	4.34	< 0.005	< 0.005	< 0.005	4.56
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.07	1.74	12.7	17.9	0.04	0.48	—	0.48	0.45	—	0.45	—	4,712	4,712	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.08	3.08	< 0.005	< 0.005	< 0.005	3.24
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.38	0.32	2.31	3.27	0.01	0.09	—	0.09	0.08	—	0.08	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.51	0.51	< 0.005	< 0.005	< 0.005	0.54
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.07	1.62	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	483	483	< 0.005	< 0.005	0.76	485
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.31	0.42	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,119	1,119	0.03	0.18	1.44	1,175
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.09	1.29	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	448	448	0.01	< 0.005	0.02	449
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.39	0.43	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,120	1,120	0.03	0.18	0.04	1,175
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.96	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	325	325	< 0.005	< 0.005	0.23	326
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	0.98	0.30	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	800	800	0.02	0.13	0.44	839
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.18	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	53.9	53.9	< 0.005	< 0.005	0.04	54.0

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.18	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	132	132	< 0.005	0.02	0.07	139

3.35. Grading (2035) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.81	2.36	16.8	24.6	0.06	0.62	—	0.62	0.57	—	0.57	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.23	4.23	< 0.005	< 0.005	< 0.005	4.45
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.81	2.36	16.8	24.6	0.06	0.62	—	0.62	0.57	—	0.57	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.27	4.27	< 0.005	< 0.005	< 0.005	4.48
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	2.01	1.69	12.0	17.6	0.04	0.45	—	0.45	0.41	—	0.41	—	4,712	4,712	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.03	3.03	< 0.005	< 0.005	< 0.005	3.19
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	0.31	2.19	3.21	0.01	0.08	—	0.08	0.07	—	0.07	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.50	0.50	< 0.005	< 0.005	< 0.005	0.53
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.07	1.54	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	478	478	< 0.005	< 0.005	0.66	479
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.29	0.41	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,097	1,097	0.02	0.17	1.24	1,150
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.09	1.23	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	443	443	< 0.005	< 0.005	0.02	444
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.36	0.42	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,098	1,098	0.02	0.17	0.03	1,150
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.92	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	322	322	< 0.005	< 0.005	0.20	323

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	0.96	0.30	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	784	784	0.02	0.12	0.38	821
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.17	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	53.3	53.3	< 0.005	< 0.005	0.03	53.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.18	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	130	130	< 0.005	0.02	0.06	136

3.36. Grading (2035) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.81	2.36	16.8	24.6	0.06	0.62	—	0.62	0.57	—	0.57	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.23	4.23	< 0.005	< 0.005	< 0.005	4.45
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.81	2.36	16.8	24.6	0.06	0.62	—	0.62	0.57	—	0.57	—	6,596	6,596	0.27	0.05	—	6,619

Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.27	4.27	< 0.005	< 0.005	< 0.005	4.48
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.01	1.69	12.0	17.6	0.04	0.45	—	0.45	0.41	—	0.41	—	4,712	4,712	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.03	3.03	< 0.005	< 0.005	< 0.005	3.19
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	0.31	2.19	3.21	0.01	0.08	—	0.08	0.07	—	0.07	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.50	0.50	< 0.005	< 0.005	< 0.005	0.53
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.07	1.54	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	478	478	< 0.005	< 0.005	0.66	479
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.29	0.41	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,097	1,097	0.02	0.17	1.24	1,150

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.09	1.23	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	443	443	< 0.005	< 0.005	0.02	444
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	0.02	1.36	0.42	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,098	1,098	0.02	0.17	0.03	1,150
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.92	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	322	322	< 0.005	< 0.005	0.20	323
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	0.96	0.30	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	784	784	0.02	0.12	0.38	821
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.17	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	53.3	53.3	< 0.005	< 0.005	0.03	53.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.18	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	130	130	< 0.005	0.02	0.06	136

3.37. Grading (2036) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.71	2.28	15.9	24.1	0.06	0.58	—	0.58	0.53	—	0.53	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.17	4.17	< 0.005	< 0.005	< 0.005	4.38
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.71	2.28	15.9	24.1	0.06	0.58	—	0.58	0.53	—	0.53	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.21	4.21	< 0.005	< 0.005	< 0.005	4.43
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.94	1.63	11.4	17.3	0.04	0.41	—	0.41	0.38	—	0.38	—	4,724	4,724	0.19	0.04	—	4,741
Dust From Material Movement	—	—	—	—	—	—	2.57	2.57	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.00	3.00	< 0.005	< 0.005	< 0.005	3.16
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.30	2.07	3.15	0.01	0.08	—	0.08	0.07	—	0.07	—	782	782	0.03	0.01	—	785
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.50	0.50	< 0.005	< 0.005	< 0.005	0.52

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.07	1.47	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	473	473	< 0.005	< 0.005	0.57	474
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.26	0.41	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,077	1,077	0.02	0.17	1.07	1,130
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.08	1.17	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	439	439	< 0.005	< 0.005	0.01	440
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.34	0.41	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,078	1,078	0.02	0.17	0.03	1,130
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.05	0.88	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	319	319	< 0.005	< 0.005	0.18	320
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.94	0.29	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	772	772	0.02	0.12	0.33	809
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	52.9	52.9	< 0.005	< 0.005	0.03	53.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.17	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	128	128	< 0.005	0.02	0.05	134

3.38. Grading (2036) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	2.71	2.28	15.9	24.1	0.06	0.58	—	0.58	0.53	—	0.53	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.17	4.17	< 0.005	< 0.005	< 0.005	4.38
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.71	2.28	15.9	24.1	0.06	0.58	—	0.58	0.53	—	0.53	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.21	4.21	< 0.005	< 0.005	< 0.005	4.43
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.94	1.63	11.4	17.3	0.04	0.41	—	0.41	0.38	—	0.38	—	4,724	4,724	0.19	0.04	—	4,741
Dust From Material Movement	—	—	—	—	—	—	2.57	2.57	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.00	3.00	< 0.005	< 0.005	< 0.005	3.16
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.30	2.07	3.15	0.01	0.08	—	0.08	0.07	—	0.07	—	782	782	0.03	0.01	—	785

Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.50	0.50	< 0.005	< 0.005	< 0.005	0.52
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.07	1.47	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	473	473	< 0.005	< 0.005	0.57	474
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.26	0.41	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,077	1,077	0.02	0.17	1.07	1,130
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.08	1.17	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	439	439	< 0.005	< 0.005	0.01	440
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.34	0.41	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,078	1,078	0.02	0.17	0.03	1,130
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.05	0.88	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	319	319	< 0.005	< 0.005	0.18	320
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.94	0.29	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	772	772	0.02	0.12	0.33	809
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	52.9	52.9	< 0.005	< 0.005	0.03	53.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.17	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	128	128	< 0.005	0.02	0.05	134

3.39. Grading (2037) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.66	2.23	15.3	23.9	0.06	0.56	—	0.56	0.51	—	0.51	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.13	4.13	< 0.005	< 0.005	< 0.005	4.33
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.66	2.23	15.3	23.9	0.06	0.56	—	0.56	0.51	—	0.51	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.17	4.17	< 0.005	< 0.005	< 0.005	4.38
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.83	1.54	10.5	16.5	0.04	0.38	—	0.38	0.35	—	0.35	—	4,544	4,544	0.18	0.04	—	4,559
Dust From Material Movement	—	—	—	—	—	—	2.47	2.47	—	0.98	0.98	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.85	2.85	< 0.005	< 0.005	< 0.005	3.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	1.92	3.01	0.01	0.07	—	0.07	0.06	—	0.06	—	752	752	0.03	0.01	—	755
Dust From Material Movement	—	—	—	—	—	—	0.45	0.45	—	0.18	0.18	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.07	1.41	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	469	469	< 0.005	< 0.005	0.49	470
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.24	0.40	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,060	1,060	0.02	0.17	0.92	1,113
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.07	1.12	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	435	435	< 0.005	< 0.005	0.01	436
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.31	0.40	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,061	1,061	0.02	0.17	0.02	1,113
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.80	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	304	304	< 0.005	< 0.005	0.14	305
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.90	0.28	0.01	0.01	0.24	0.25	0.01	0.07	0.08	—	731	731	0.02	0.12	0.27	767
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.15	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	50.4	50.4	< 0.005	< 0.005	0.02	50.5

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	121	121	< 0.005	0.02	0.05	127

3.40. Grading (2037) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.66	2.23	15.3	23.9	0.06	0.56	—	0.56	0.51	—	0.51	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.13	4.13	< 0.005	< 0.005	< 0.005	4.33
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.66	2.23	15.3	23.9	0.06	0.56	—	0.56	0.51	—	0.51	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.17	4.17	< 0.005	< 0.005	< 0.005	4.38
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	1.83	1.54	10.5	16.5	0.04	0.38	—	0.38	0.35	—	0.35	—	4,544	4,544	0.18	0.04	—	4,559
Dust From Material Movement	—	—	—	—	—	—	2.47	2.47	—	0.98	0.98	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.85	2.85	< 0.005	< 0.005	< 0.005	3.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	1.92	3.01	0.01	0.07	—	0.07	0.06	—	0.06	—	752	752	0.03	0.01	—	755
Dust From Material Movement	—	—	—	—	—	—	0.45	0.45	—	0.18	0.18	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.07	1.41	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	469	469	< 0.005	< 0.005	0.49	470
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.24	0.40	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,060	1,060	0.02	0.17	0.92	1,113
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.07	1.12	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	435	435	< 0.005	< 0.005	0.01	436
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.31	0.40	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,061	1,061	0.02	0.17	0.02	1,113
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.80	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	304	304	< 0.005	< 0.005	0.14	305

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.90	0.28	0.01	0.01	0.24	0.25	0.01	0.07	0.08	—	731	731	0.02	0.12	0.27	767
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.15	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	50.4	50.4	< 0.005	< 0.005	0.02	50.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	121	121	< 0.005	0.02	0.05	127

3.41. Building Construction (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	0.89	8.14	12.4	0.02	0.27	—	0.27	0.25	—	0.25	—	2,294	2,294	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	0.89	8.14	12.4	0.02	0.27	—	0.27	0.25	—	0.25	—	2,294	2,294	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.76	0.64	5.80	8.84	0.02	0.19	—	0.19	0.18	—	0.18	—	1,634	1,634	0.07	0.01	—	1,639
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	1.06	1.61	< 0.005	0.04	—	0.04	0.03	—	0.03	—	270	270	0.01	< 0.005	—	271
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.84	0.75	0.69	11.6	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,644	2,644	0.03	0.09	7.92	2,681
Vendor	0.08	0.05	1.65	0.66	0.01	0.02	0.43	0.45	0.02	0.12	0.14	—	1,495	1,495	0.03	0.21	3.36	1,562
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.74	0.72	0.79	9.30	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,453	2,453	0.04	0.09	0.21	2,482
Vendor	0.08	0.04	1.74	0.66	0.01	0.02	0.43	0.45	0.02	0.12	0.14	—	1,496	1,496	0.03	0.21	0.09	1,560
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.52	0.51	0.56	6.91	0.00	0.00	1.73	1.73	0.00	0.40	0.40	—	1,776	1,776	0.03	0.07	2.43	1,799
Vendor	0.06	0.03	1.22	0.47	0.01	0.02	0.29	0.30	0.02	0.08	0.10	—	1,065	1,065	0.02	0.15	1.03	1,112
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.10	1.26	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	294	294	< 0.005	0.01	0.40	298

Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.05	0.06	< 0.005	0.01	0.02	—	176	176	< 0.005	0.02	0.17	184
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.42. Building Construction (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	0.89	8.14	12.4	0.02	0.27	—	0.27	0.25	—	0.25	—	2,294	2,294	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	0.89	8.14	12.4	0.02	0.27	—	0.27	0.25	—	0.25	—	2,294	2,294	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76	0.64	5.80	8.84	0.02	0.19	—	0.19	0.18	—	0.18	—	1,634	1,634	0.07	0.01	—	1,639
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.14	0.12	1.06	1.61	< 0.005	0.04	—	0.04	0.03	—	0.03	—	270	270	0.01	< 0.005	—	271
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.84	0.75	0.69	11.6	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,644	2,644	0.03	0.09	7.92	2,681
Vendor	0.08	0.05	1.65	0.66	0.01	0.02	0.43	0.45	0.02	0.12	0.14	—	1,495	1,495	0.03	0.21	3.36	1,562
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.74	0.72	0.79	9.30	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,453	2,453	0.04	0.09	0.21	2,482
Vendor	0.08	0.04	1.74	0.66	0.01	0.02	0.43	0.45	0.02	0.12	0.14	—	1,496	1,496	0.03	0.21	0.09	1,560
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.52	0.51	0.56	6.91	0.00	0.00	1.73	1.73	0.00	0.40	0.40	—	1,776	1,776	0.03	0.07	2.43	1,799
Vendor	0.06	0.03	1.22	0.47	0.01	0.02	0.29	0.30	0.02	0.08	0.10	—	1,065	1,065	0.02	0.15	1.03	1,112
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.10	1.26	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	294	294	< 0.005	0.01	0.40	298
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.05	0.06	< 0.005	0.01	0.02	—	176	176	< 0.005	0.02	0.17	184
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.43. Building Construction (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.04	0.87	7.80	12.4	0.02	0.24	—	0.24	0.23	—	0.23	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.04	0.87	7.80	12.4	0.02	0.24	—	0.24	0.23	—	0.23	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.74	0.62	5.57	8.84	0.02	0.17	—	0.17	0.16	—	0.16	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	1.02	1.61	< 0.005	0.03	—	0.03	0.03	—	0.03	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.73	0.72	0.60	10.9	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,598	2,598	0.03	0.09	7.09	2,634
Vendor	0.08	0.04	1.57	0.62	0.01	0.02	0.43	0.45	0.02	0.12	0.14	—	1,454	1,454	0.03	0.21	3.01	1,521
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.70	0.61	0.70	8.70	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,410	2,410	0.04	0.09	0.18	2,440
Vendor	0.08	0.03	1.67	0.64	0.01	0.02	0.43	0.45	0.02	0.12	0.14	—	1,455	1,455	0.03	0.21	0.08	1,519
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.50	0.49	0.50	6.51	0.00	0.00	1.73	1.73	0.00	0.40	0.40	—	1,750	1,750	0.02	0.07	2.19	1,773
Vendor	0.06	0.02	1.17	0.45	0.01	0.02	0.29	0.30	0.02	0.08	0.10	—	1,039	1,039	0.02	0.15	0.92	1,086
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.09	1.19	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	290	290	< 0.005	0.01	0.36	294
Vendor	0.01	< 0.005	0.21	0.08	< 0.005	< 0.005	0.05	0.06	< 0.005	0.01	0.02	—	172	172	< 0.005	0.02	0.15	180
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.44. Building Construction (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.04	0.87	7.80	12.4	0.02	0.24	—	0.24	0.23	—	0.23	—	2,293	2,293	0.09	0.02	—	2,301

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.04	0.87	7.80	12.4	0.02	0.24	—	0.24	0.23	—	0.23	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.74	0.62	5.57	8.84	0.02	0.17	—	0.17	0.16	—	0.16	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	1.02	1.61	< 0.005	0.03	—	0.03	0.03	—	0.03	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.73	0.72	0.60	10.9	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,598	2,598	0.03	0.09	7.09	2,634
Vendor	0.08	0.04	1.57	0.62	0.01	0.02	0.43	0.45	0.02	0.12	0.14	—	1,454	1,454	0.03	0.21	3.01	1,521
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.70	0.61	0.70	8.70	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,410	2,410	0.04	0.09	0.18	2,440
Vendor	0.08	0.03	1.67	0.64	0.01	0.02	0.43	0.45	0.02	0.12	0.14	—	1,455	1,455	0.03	0.21	0.08	1,519
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.50	0.49	0.50	6.51	0.00	0.00	1.73	1.73	0.00	0.40	0.40	—	1,750	1,750	0.02	0.07	2.19	1,773
Vendor	0.06	0.02	1.17	0.45	0.01	0.02	0.29	0.30	0.02	0.08	0.10	—	1,039	1,039	0.02	0.15	0.92	1,086
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.09	1.19	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	290	290	< 0.005	0.01	0.36	294
Vendor	0.01	< 0.005	0.21	0.08	< 0.005	< 0.005	0.05	0.06	< 0.005	0.01	0.02	—	172	172	< 0.005	0.02	0.15	180
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.45. Building Construction (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.01	0.84	7.61	12.4	0.02	0.23	—	0.23	0.21	—	0.21	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.01	0.84	7.61	12.4	0.02	0.23	—	0.23	0.21	—	0.21	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	0.60	5.44	8.83	0.02	0.16	—	0.16	0.15	—	0.15	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.99	1.61	< 0.005	0.03	—	0.03	0.03	—	0.03	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.70	0.61	0.51	10.2	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,555	2,555	0.03	0.09	6.32	2,590
Vendor	0.08	0.04	1.51	0.61	0.01	0.02	0.43	0.45	0.01	0.12	0.13	—	1,411	1,411	0.03	0.20	2.65	1,474
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.67	0.58	0.61	8.19	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,370	2,370	0.03	0.09	0.16	2,399
Vendor	0.08	0.03	1.59	0.62	0.01	0.02	0.43	0.45	0.01	0.12	0.13	—	1,412	1,412	0.03	0.20	0.07	1,472
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.48	0.41	0.43	6.09	0.00	0.00	1.73	1.73	0.00	0.40	0.40	—	1,721	1,721	0.02	0.07	1.95	1,744
Vendor	0.06	0.02	1.13	0.44	0.01	0.02	0.29	0.30	0.01	0.08	0.09	—	1,008	1,008	0.02	0.14	0.82	1,052
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.11	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	285	285	< 0.005	0.01	0.32	289
Vendor	0.01	< 0.005	0.21	0.08	< 0.005	< 0.005	0.05	0.06	< 0.005	0.01	0.02	—	167	167	< 0.005	0.02	0.14	174
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.46. Building Construction (2030) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.01	0.84	7.61	12.4	0.02	0.23	—	0.23	0.21	—	0.21	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.01	0.84	7.61	12.4	0.02	0.23	—	0.23	0.21	—	0.21	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	0.60	5.44	8.83	0.02	0.16	—	0.16	0.15	—	0.15	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.99	1.61	< 0.005	0.03	—	0.03	0.03	—	0.03	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.70	0.61	0.51	10.2	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,555	2,555	0.03	0.09	6.32	2,590
Vendor	0.08	0.04	1.51	0.61	0.01	0.02	0.43	0.45	0.01	0.12	0.13	—	1,411	1,411	0.03	0.20	2.65	1,474
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.67	0.58	0.61	8.19	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,370	2,370	0.03	0.09	0.16	2,399
Vendor	0.08	0.03	1.59	0.62	0.01	0.02	0.43	0.45	0.01	0.12	0.13	—	1,412	1,412	0.03	0.20	0.07	1,472
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.48	0.41	0.43	6.09	0.00	0.00	1.73	1.73	0.00	0.40	0.40	—	1,721	1,721	0.02	0.07	1.95	1,744
Vendor	0.06	0.02	1.13	0.44	0.01	0.02	0.29	0.30	0.01	0.08	0.09	—	1,008	1,008	0.02	0.14	0.82	1,052
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.09	0.08	0.08	1.11	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	285	285	< 0.005	0.01	0.32	289
Vendor	0.01	< 0.005	0.21	0.08	< 0.005	< 0.005	0.05	0.06	< 0.005	0.01	0.02	—	167	167	< 0.005	0.02	0.14	174
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.47. Building Construction (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.98	0.82	7.34	12.3	0.02	0.21	—	0.21	0.20	—	0.20	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.98	0.82	7.34	12.3	0.02	0.21	—	0.21	0.20	—	0.20	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.70	0.59	5.24	8.80	0.02	0.15	—	0.15	0.14	—	0.14	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.96	1.61	< 0.005	0.03	—	0.03	0.03	—	0.03	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.67	0.58	0.51	9.58	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,514	2,514	0.03	0.01	5.61	2,525
Vendor	0.07	0.04	1.44	0.58	0.01	0.02	0.43	0.45	0.01	0.12	0.13	—	1,364	1,364	0.03	0.20	2.32	1,427
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.65	0.55	0.61	7.68	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,333	2,333	0.03	0.09	0.15	2,362
Vendor	0.07	0.03	1.53	0.60	0.01	0.02	0.43	0.45	0.01	0.12	0.13	—	1,366	1,366	0.03	0.20	0.06	1,426
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.46	0.39	0.43	5.73	0.00	0.00	1.73	1.73	0.00	0.40	0.40	—	1,694	1,694	0.02	0.07	1.73	1,716
Vendor	0.05	0.02	1.08	0.42	0.01	0.02	0.29	0.30	0.01	0.08	0.09	—	975	975	0.02	0.14	0.71	1,019
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.08	1.05	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	280	280	< 0.005	0.01	0.29	284
Vendor	0.01	< 0.005	0.20	0.08	< 0.005	< 0.005	0.05	0.06	< 0.005	0.01	0.02	—	161	161	< 0.005	0.02	0.12	169
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.48. Building Construction (2031) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.98	0.82	7.34	12.3	0.02	0.21	—	0.21	0.20	—	0.20	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.98	0.82	7.34	12.3	0.02	0.21	—	0.21	0.20	—	0.20	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.70	0.59	5.24	8.80	0.02	0.15	—	0.15	0.14	—	0.14	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.96	1.61	< 0.005	0.03	—	0.03	0.03	—	0.03	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.67	0.58	0.51	9.58	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,514	2,514	0.03	0.01	5.61	2,525
Vendor	0.07	0.04	1.44	0.58	0.01	0.02	0.43	0.45	0.01	0.12	0.13	—	1,364	1,364	0.03	0.20	2.32	1,427
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.65	0.55	0.61	7.68	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,333	2,333	0.03	0.09	0.15	2,362
Vendor	0.07	0.03	1.53	0.60	0.01	0.02	0.43	0.45	0.01	0.12	0.13	—	1,366	1,366	0.03	0.20	0.06	1,426
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.46	0.39	0.43	5.73	0.00	0.00	1.73	1.73	0.00	0.40	0.40	—	1,694	1,694	0.02	0.07	1.73	1,716
Vendor	0.05	0.02	1.08	0.42	0.01	0.02	0.29	0.30	0.01	0.08	0.09	—	975	975	0.02	0.14	0.71	1,019
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.08	1.05	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	280	280	< 0.005	0.01	0.29	284
Vendor	0.01	< 0.005	0.20	0.08	< 0.005	< 0.005	0.05	0.06	< 0.005	0.01	0.02	—	161	161	< 0.005	0.02	0.12	169
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.49. Building Construction (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.95	0.80	7.09	12.3	0.02	0.19	—	0.19	0.18	—	0.18	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.95	0.80	7.09	12.3	0.02	0.19	—	0.19	0.18	—	0.18	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.68	0.57	5.08	8.79	0.02	0.14	—	0.14	0.13	—	0.13	—	1,642	1,642	0.07	0.01	—	1,648
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.93	1.60	< 0.005	0.03	—	0.03	0.02	—	0.02	—	272	272	0.01	< 0.005	—	273
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.64	0.55	0.42	9.03	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,478	2,478	0.02	0.01	4.95	2,487
Vendor	0.07	0.04	1.39	0.57	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,319	1,319	0.03	0.19	1.99	1,378
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.62	0.53	0.52	7.26	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,299	2,299	0.03	0.09	0.13	2,328
Vendor	0.07	0.03	1.48	0.57	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,320	1,320	0.03	0.19	0.05	1,377
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.45	0.38	0.37	5.40	0.00	0.00	1.74	1.74	0.00	0.40	0.40	—	1,674	1,674	0.02	0.01	1.53	1,679
Vendor	0.05	0.02	1.04	0.41	0.01	0.01	0.29	0.30	0.01	0.08	0.09	—	945	945	0.02	0.13	0.61	986
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	0.98	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	277	277	< 0.005	< 0.005	0.25	278
Vendor	0.01	< 0.005	0.19	0.08	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	156	156	< 0.005	0.02	0.10	163
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.50. Building Construction (2032) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.95	0.80	7.09	12.3	0.02	0.19	—	0.19	0.18	—	0.18	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.95	0.80	7.09	12.3	0.02	0.19	—	0.19	0.18	—	0.18	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.68	0.57	5.08	8.79	0.02	0.14	—	0.14	0.13	—	0.13	—	1,642	1,642	0.07	0.01	—	1,648
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.12	0.10	0.93	1.60	< 0.005	0.03	—	0.03	0.02	—	0.02	—	272	272	0.01	< 0.005	—	273
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.64	0.55	0.42	9.03	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,478	2,478	0.02	0.01	4.95	2,487
Vendor	0.07	0.04	1.39	0.57	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,319	1,319	0.03	0.19	1.99	1,378
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.62	0.53	0.52	7.26	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,299	2,299	0.03	0.09	0.13	2,328
Vendor	0.07	0.03	1.48	0.57	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,320	1,320	0.03	0.19	0.05	1,377
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.45	0.38	0.37	5.40	0.00	0.00	1.74	1.74	0.00	0.40	0.40	—	1,674	1,674	0.02	0.01	1.53	1,679
Vendor	0.05	0.02	1.04	0.41	0.01	0.01	0.29	0.30	0.01	0.08	0.09	—	945	945	0.02	0.13	0.61	986
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	0.98	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	277	277	< 0.005	< 0.005	0.25	278
Vendor	0.01	< 0.005	0.19	0.08	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	156	156	< 0.005	0.02	0.10	163
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.51. Building Construction (2033) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.93	0.78	6.89	12.3	0.02	0.17	—	0.17	0.16	—	0.16	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.93	0.78	6.89	12.3	0.02	0.17	—	0.17	0.16	—	0.16	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.66	0.56	4.92	8.76	0.02	0.12	—	0.12	0.11	—	0.11	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.90	1.60	< 0.005	0.02	—	0.02	0.02	—	0.02	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.54	0.53	0.42	8.56	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,445	2,445	0.02	0.01	4.35	2,454
Vendor	0.07	0.03	1.34	0.55	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,276	1,276	0.03	0.19	1.70	1,334
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.52	0.51	0.51	6.85	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,269	2,269	0.03	0.01	0.11	2,274
Vendor	0.07	0.03	1.41	0.56	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,277	1,277	0.03	0.19	0.04	1,334
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.37	0.36	0.31	5.09	0.00	0.00	1.73	1.73	0.00	0.40	0.40	—	1,648	1,648	0.02	0.01	1.34	1,652
Vendor	0.05	0.02	1.00	0.40	0.01	0.01	0.29	0.29	0.01	0.08	0.09	—	911	911	0.02	0.13	0.52	953
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.93	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	273	273	< 0.005	< 0.005	0.22	274
Vendor	0.01	< 0.005	0.18	0.07	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	151	151	< 0.005	0.02	0.09	158

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.52. Building Construction (2033) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.93	0.78	6.89	12.3	0.02	0.17	—	0.17	0.16	—	0.16	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.93	0.78	6.89	12.3	0.02	0.17	—	0.17	0.16	—	0.16	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.66	0.56	4.92	8.76	0.02	0.12	—	0.12	0.11	—	0.11	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.12	0.10	0.90	1.60	< 0.005	0.02	—	0.02	0.02	—	0.02	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.54	0.53	0.42	8.56	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,445	2,445	0.02	0.01	4.35	2,454
Vendor	0.07	0.03	1.34	0.55	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,276	1,276	0.03	0.19	1.70	1,334
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.52	0.51	0.51	6.85	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,269	2,269	0.03	0.01	0.11	2,274
Vendor	0.07	0.03	1.41	0.56	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,277	1,277	0.03	0.19	0.04	1,334
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.37	0.36	0.31	5.09	0.00	0.00	1.73	1.73	0.00	0.40	0.40	—	1,648	1,648	0.02	0.01	1.34	1,652
Vendor	0.05	0.02	1.00	0.40	0.01	0.01	0.29	0.29	0.01	0.08	0.09	—	911	911	0.02	0.13	0.52	953
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.93	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	273	273	< 0.005	< 0.005	0.22	274
Vendor	0.01	< 0.005	0.18	0.07	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	151	151	< 0.005	0.02	0.09	158
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.53. Building Construction (2034) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.77	6.74	12.2	0.02	0.16	—	0.16	0.15	—	0.15	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.77	6.74	12.2	0.02	0.16	—	0.16	0.15	—	0.15	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65	0.55	4.82	8.75	0.02	0.12	—	0.12	0.11	—	0.11	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.88	1.60	< 0.005	0.02	—	0.02	0.02	—	0.02	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.51	0.50	0.33	8.10	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,415	2,415	0.02	0.01	3.79	2,423
Vendor	0.07	0.03	1.30	0.53	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,234	1,234	0.03	0.18	1.45	1,289
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.50	0.48	0.43	6.45	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,241	2,241	0.03	0.01	0.10	2,246
Vendor	0.07	0.03	1.37	0.55	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,235	1,235	0.03	0.18	0.04	1,288
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.35	0.35	0.30	4.81	0.00	0.00	1.73	1.73	0.00	0.40	0.40	—	1,627	1,627	0.02	0.01	1.17	1,632
Vendor	0.05	0.02	0.97	0.39	0.01	0.01	0.29	0.29	0.01	0.08	0.09	—	882	882	0.02	0.13	0.45	920
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.88	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	269	269	< 0.005	< 0.005	0.19	270
Vendor	0.01	< 0.005	0.18	0.07	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	146	146	< 0.005	0.02	0.07	152
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.54. Building Construction (2034) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.91	0.77	6.74	12.2	0.02	0.16	—	0.16	0.15	—	0.15	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.77	6.74	12.2	0.02	0.16	—	0.16	0.15	—	0.15	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65	0.55	4.82	8.75	0.02	0.12	—	0.12	0.11	—	0.11	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.88	1.60	< 0.005	0.02	—	0.02	0.02	—	0.02	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.51	0.50	0.33	8.10	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,415	2,415	0.02	0.01	3.79	2,423
Vendor	0.07	0.03	1.30	0.53	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,234	1,234	0.03	0.18	1.45	1,289
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.50	0.48	0.43	6.45	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,241	2,241	0.03	0.01	0.10	2,246
Vendor	0.07	0.03	1.37	0.55	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,235	1,235	0.03	0.18	0.04	1,288
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.35	0.35	0.30	4.81	0.00	0.00	1.73	1.73	0.00	0.40	0.40	—	1,627	1,627	0.02	0.01	1.17	1,632
Vendor	0.05	0.02	0.97	0.39	0.01	0.01	0.29	0.29	0.01	0.08	0.09	—	882	882	0.02	0.13	0.45	920
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.88	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	269	269	< 0.005	< 0.005	0.19	270
Vendor	0.01	< 0.005	0.18	0.07	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	146	146	< 0.005	0.02	0.07	152
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.55. Building Construction (2035) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.90	0.75	6.56	12.2	0.02	0.15	—	0.15	0.14	—	0.14	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.90	0.75	6.56	12.2	0.02	0.15	—	0.15	0.14	—	0.14	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.64	0.54	4.69	8.69	0.02	0.11	—	0.11	0.10	—	0.10	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.86	1.59	< 0.005	0.02	—	0.02	0.02	—	0.02	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.50	0.49	0.33	7.72	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,388	2,388	0.02	0.01	3.29	2,396
Vendor	0.07	0.03	1.25	0.52	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,194	1,194	0.03	0.18	1.22	1,249
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.49	0.47	0.43	6.14	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,216	2,216	0.02	0.01	0.09	2,221
Vendor	0.07	0.03	1.34	0.54	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,196	1,196	0.03	0.18	0.03	1,249
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.35	0.34	0.30	4.60	0.00	0.00	1.73	1.73	0.00	0.40	0.40	—	1,609	1,609	0.02	0.01	1.02	1,613
Vendor	0.05	0.02	0.93	0.38	0.01	0.01	0.29	0.29	0.01	0.08	0.09	—	854	854	0.02	0.13	0.38	892
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.84	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	266	266	< 0.005	< 0.005	0.17	267
Vendor	0.01	< 0.005	0.17	0.07	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	141	141	< 0.005	0.02	0.06	148
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.56. Building Construction (2035) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.90	0.75	6.56	12.2	0.02	0.15	—	0.15	0.14	—	0.14	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.90	0.75	6.56	12.2	0.02	0.15	—	0.15	0.14	—	0.14	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.64	0.54	4.69	8.69	0.02	0.11	—	0.11	0.10	—	0.10	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.86	1.59	< 0.005	0.02	—	0.02	0.02	—	0.02	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.50	0.49	0.33	7.72	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,388	2,388	0.02	0.01	3.29	2,396
Vendor	0.07	0.03	1.25	0.52	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,194	1,194	0.03	0.18	1.22	1,249
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.49	0.47	0.43	6.14	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,216	2,216	0.02	0.01	0.09	2,221
Vendor	0.07	0.03	1.34	0.54	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,196	1,196	0.03	0.18	0.03	1,249
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.35	0.34	0.30	4.60	0.00	0.00	1.73	1.73	0.00	0.40	0.40	—	1,609	1,609	0.02	0.01	1.02	1,613
Vendor	0.05	0.02	0.93	0.38	0.01	0.01	0.29	0.29	0.01	0.08	0.09	—	854	854	0.02	0.13	0.38	892
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.84	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	266	266	< 0.005	< 0.005	0.17	267
Vendor	0.01	< 0.005	0.17	0.07	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	141	141	< 0.005	0.02	0.06	148

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.57. Building Construction (2036) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.73	6.34	12.1	0.02	0.14	—	0.14	0.13	—	0.13	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.73	6.34	12.1	0.02	0.14	—	0.14	0.13	—	0.13	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.63	0.53	4.54	8.66	0.02	0.10	—	0.10	0.09	—	0.09	—	1,642	1,642	0.07	0.01	—	1,648
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.11	0.10	0.83	1.58	< 0.005	0.02	—	0.02	0.02	—	0.02	—	272	272	0.01	< 0.005	—	273
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.49	0.48	0.33	7.35	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,364	2,364	0.02	0.01	2.83	2,371
Vendor	0.06	0.03	1.22	0.51	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,158	1,158	0.02	0.18	1.02	1,212
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.47	0.47	0.42	5.83	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,194	2,194	0.02	0.01	0.07	2,198
Vendor	0.05	0.03	1.30	0.52	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,160	1,160	0.02	0.18	0.03	1,213
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.34	0.33	0.24	4.39	0.00	0.00	1.74	1.74	0.00	0.40	0.40	—	1,597	1,597	0.02	0.01	0.88	1,601
Vendor	0.04	0.02	0.91	0.37	0.01	0.01	0.29	0.30	0.01	0.08	0.09	—	830	830	0.02	0.13	0.32	868
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.80	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	264	264	< 0.005	< 0.005	0.15	265
Vendor	0.01	< 0.005	0.17	0.07	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	137	137	< 0.005	0.02	0.05	144
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.58. Building Construction (2036) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.73	6.34	12.1	0.02	0.14	—	0.14	0.13	—	0.13	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.73	6.34	12.1	0.02	0.14	—	0.14	0.13	—	0.13	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.63	0.53	4.54	8.66	0.02	0.10	—	0.10	0.09	—	0.09	—	1,642	1,642	0.07	0.01	—	1,648
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.10	0.83	1.58	< 0.005	0.02	—	0.02	0.02	—	0.02	—	272	272	0.01	< 0.005	—	273
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.49	0.48	0.33	7.35	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,364	2,364	0.02	0.01	2.83	2,371
Vendor	0.06	0.03	1.22	0.51	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,158	1,158	0.02	0.18	1.02	1,212
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.47	0.47	0.42	5.83	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,194	2,194	0.02	0.01	0.07	2,198
Vendor	0.05	0.03	1.30	0.52	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,160	1,160	0.02	0.18	0.03	1,213
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.34	0.33	0.24	4.39	0.00	0.00	1.74	1.74	0.00	0.40	0.40	—	1,597	1,597	0.02	0.01	0.88	1,601
Vendor	0.04	0.02	0.91	0.37	0.01	0.01	0.29	0.30	0.01	0.08	0.09	—	830	830	0.02	0.13	0.32	868
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.80	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	264	264	< 0.005	< 0.005	0.15	265
Vendor	0.01	< 0.005	0.17	0.07	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	137	137	< 0.005	0.02	0.05	144
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.59. Building Construction (2037) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.86	0.72	6.21	12.0	0.02	0.13	—	0.13	0.12	—	0.12	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.86	0.72	6.21	12.0	0.02	0.13	—	0.13	0.12	—	0.12	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.59	0.50	4.28	8.25	0.02	0.09	—	0.09	0.08	—	0.08	—	1,580	1,580	0.06	0.01	—	1,585
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.78	1.51	< 0.005	0.02	—	0.02	0.01	—	0.01	—	262	262	0.01	< 0.005	—	262
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.47	0.46	0.33	7.07	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,343	2,343	0.02	0.01	2.44	2,349
Vendor	0.06	0.03	1.18	0.50	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,126	1,126	0.02	0.17	0.85	1,177
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.46	0.45	0.34	5.61	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,174	2,174	0.02	0.01	0.06	2,178
Vendor	0.05	0.03	1.26	0.51	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,128	1,128	0.02	0.17	0.02	1,177
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.31	0.31	0.23	4.02	0.00	0.00	1.67	1.67	0.00	0.39	0.39	—	1,522	1,522	0.02	0.01	0.72	1,526
Vendor	0.04	0.02	0.86	0.35	0.01	0.01	0.28	0.28	0.01	0.08	0.08	—	776	776	0.01	0.11	0.25	811
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.73	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	252	252	< 0.005	< 0.005	0.12	253
Vendor	0.01	< 0.005	0.16	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	129	129	< 0.005	0.02	0.04	134
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.60. Building Construction (2037) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.86	0.72	6.21	12.0	0.02	0.13	—	0.13	0.12	—	0.12	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.86	0.72	6.21	12.0	0.02	0.13	—	0.13	0.12	—	0.12	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.59	0.50	4.28	8.25	0.02	0.09	—	0.09	0.08	—	0.08	—	1,580	1,580	0.06	0.01	—	1,585
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.11	0.09	0.78	1.51	< 0.005	0.02	—	0.02	0.01	—	0.01	—	262	262	0.01	< 0.005	—	262
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.47	0.46	0.33	7.07	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,343	2,343	0.02	0.01	2.44	2,349
Vendor	0.06	0.03	1.18	0.50	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,126	1,126	0.02	0.17	0.85	1,177
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.46	0.45	0.34	5.61	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,174	2,174	0.02	0.01	0.06	2,178
Vendor	0.05	0.03	1.26	0.51	0.01	0.01	0.43	0.44	0.01	0.12	0.13	—	1,128	1,128	0.02	0.17	0.02	1,177
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.31	0.31	0.23	4.02	0.00	0.00	1.67	1.67	0.00	0.39	0.39	—	1,522	1,522	0.02	0.01	0.72	1,526
Vendor	0.04	0.02	0.86	0.35	0.01	0.01	0.28	0.28	0.01	0.08	0.08	—	776	776	0.01	0.11	0.25	811
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.73	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	252	252	< 0.005	< 0.005	0.12	253
Vendor	0.01	< 0.005	0.16	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	129	129	< 0.005	0.02	0.04	134
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.61. Paving (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.49	4.72	7.06	0.01	0.18	—	0.18	0.17	—	0.17	—	1,076	1,076	0.04	0.01	—	1,080
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.86	1.29	< 0.005	0.03	—	0.03	0.03	—	0.03	—	178	178	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	1.16	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	264	264	< 0.005	0.01	0.79	268
Vendor	0.03	0.02	0.66	0.26	< 0.005	0.01	0.17	0.18	0.01	0.05	0.06	—	598	598	0.01	0.08	1.34	625
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.08	0.93	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	245	245	< 0.005	0.01	0.02	248
Vendor	0.03	0.02	0.70	0.27	< 0.005	0.01	0.17	0.18	0.01	0.05	0.06	—	599	599	0.01	0.08	0.03	624
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.06	0.69	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	178	178	< 0.005	0.01	0.24	180
Vendor	0.02	0.01	0.49	0.19	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	—	426	426	0.01	0.06	0.41	445

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.4	29.4	< 0.005	< 0.005	0.04	29.8
Vendor	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	70.6	70.6	< 0.005	0.01	0.07	73.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.62. Paving (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.58	0.49	4.72	7.06	0.01	0.18	—	0.18	0.17	—	0.17	—	1,076	1,076	0.04	0.01	—	1,080
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.86	1.29	< 0.005	0.03	—	0.03	0.03	—	0.03	—	178	178	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	1.16	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	264	264	< 0.005	0.01	0.79	268
Vendor	0.03	0.02	0.66	0.26	< 0.005	0.01	0.17	0.18	0.01	0.05	0.06	—	598	598	0.01	0.08	1.34	625
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.08	0.93	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	245	245	< 0.005	0.01	0.02	248
Vendor	0.03	0.02	0.70	0.27	< 0.005	0.01	0.17	0.18	0.01	0.05	0.06	—	599	599	0.01	0.08	0.03	624
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.06	0.69	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	178	178	< 0.005	0.01	0.24	180
Vendor	0.02	0.01	0.49	0.19	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	—	426	426	0.01	0.06	0.41	445
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.4	29.4	< 0.005	< 0.005	0.04	29.8
Vendor	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	70.6	70.6	< 0.005	0.01	0.07	73.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.63. Paving (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	0.67	6.46	9.92	0.01	0.24	—	0.24	0.22	—	0.22	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	0.67	6.46	9.92	0.01	0.24	—	0.24	0.22	—	0.22	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57	0.48	4.61	7.08	0.01	0.17	—	0.17	0.16	—	0.16	—	1,079	1,079	0.04	0.01	—	1,083

Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.84	1.29	< 0.005	0.03	—	0.03	0.03	—	0.03	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	1.09	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	260	260	< 0.005	0.01	0.71	263
Vendor	0.03	0.01	0.63	0.25	< 0.005	0.01	0.17	0.18	0.01	0.05	0.06	—	582	582	0.01	0.08	1.20	608
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.87	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	241	241	< 0.005	0.01	0.02	244
Vendor	0.03	0.01	0.67	0.26	< 0.005	0.01	0.17	0.18	0.01	0.05	0.06	—	582	582	0.01	0.08	0.03	608
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.65	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	175	175	< 0.005	0.01	0.22	177
Vendor	0.02	0.01	0.47	0.18	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	—	416	416	0.01	0.06	0.37	434
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.0	29.0	< 0.005	< 0.005	0.04	29.4
Vendor	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	68.8	68.8	< 0.005	0.01	0.06	71.9

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.64. Paving (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	0.67	6.46	9.92	0.01	0.24	—	0.24	0.22	—	0.22	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	0.67	6.46	9.92	0.01	0.24	—	0.24	0.22	—	0.22	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57	0.48	4.61	7.08	0.01	0.17	—	0.17	0.16	—	0.16	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.84	1.29	< 0.005	0.03	—	0.03	0.03	—	0.03	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	1.09	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	260	260	< 0.005	0.01	0.71	263
Vendor	0.03	0.01	0.63	0.25	< 0.005	0.01	0.17	0.18	0.01	0.05	0.06	—	582	582	0.01	0.08	1.20	608
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.87	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	241	241	< 0.005	0.01	0.02	244
Vendor	0.03	0.01	0.67	0.26	< 0.005	0.01	0.17	0.18	0.01	0.05	0.06	—	582	582	0.01	0.08	0.03	608
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.65	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	175	175	< 0.005	0.01	0.22	177
Vendor	0.02	0.01	0.47	0.18	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	—	416	416	0.01	0.06	0.37	434
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.0	29.0	< 0.005	< 0.005	0.04	29.4
Vendor	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	68.8	68.8	< 0.005	0.01	0.06	71.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.65. Paving (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.77	0.64	6.28	9.90	0.01	0.22	—	0.22	0.20	—	0.20	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.77	0.64	6.28	9.90	0.01	0.22	—	0.22	0.20	—	0.20	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	0.46	4.49	7.07	0.01	0.16	—	0.16	0.14	—	0.14	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.10	0.08	0.82	1.29	< 0.005	0.03	—	0.03	0.03	—	0.03	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	1.02	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	255	255	< 0.005	0.01	0.63	259
Vendor	0.03	0.01	0.60	0.24	< 0.005	0.01	0.17	0.18	< 0.005	0.05	0.05	—	564	564	0.01	0.08	1.06	589
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.82	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	237	237	< 0.005	0.01	0.02	240
Vendor	0.03	0.01	0.64	0.25	< 0.005	0.01	0.17	0.18	< 0.005	0.05	0.05	—	565	565	0.01	0.08	0.03	589
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.61	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	172	172	< 0.005	0.01	0.19	174
Vendor	0.02	0.01	0.45	0.18	< 0.005	0.01	0.11	0.12	< 0.005	0.03	0.04	—	403	403	0.01	0.06	0.33	421
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.5	28.5	< 0.005	< 0.005	0.03	28.9
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	66.7	66.7	< 0.005	0.01	0.05	69.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.66. Paving (2030) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.77	0.64	6.28	9.90	0.01	0.22	—	0.22	0.20	—	0.20	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.77	0.64	6.28	9.90	0.01	0.22	—	0.22	0.20	—	0.20	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	0.46	4.49	7.07	0.01	0.16	—	0.16	0.14	—	0.14	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.82	1.29	< 0.005	0.03	—	0.03	0.03	—	0.03	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	1.02	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	255	255	< 0.005	0.01	0.63	259
Vendor	0.03	0.01	0.60	0.24	< 0.005	0.01	0.17	0.18	< 0.005	0.05	0.05	—	564	564	0.01	0.08	1.06	589
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.82	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	237	237	< 0.005	0.01	0.02	240
Vendor	0.03	0.01	0.64	0.25	< 0.005	0.01	0.17	0.18	< 0.005	0.05	0.05	—	565	565	0.01	0.08	0.03	589
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.61	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	172	172	< 0.005	0.01	0.19	174
Vendor	0.02	0.01	0.45	0.18	< 0.005	0.01	0.11	0.12	< 0.005	0.03	0.04	—	403	403	0.01	0.06	0.33	421
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.5	28.5	< 0.005	< 0.005	0.03	28.9
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	66.7	66.7	< 0.005	0.01	0.05	69.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.67. Paving (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.75	0.63	6.13	9.88	0.01	0.21	—	0.21	0.19	—	0.19	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.75	0.63	6.13	9.88	0.01	0.21	—	0.21	0.19	—	0.19	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	0.45	4.38	7.06	0.01	0.15	—	0.15	0.14	—	0.14	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.80	1.29	< 0.005	0.03	—	0.03	0.03	—	0.03	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	0.96	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	< 0.005	0.56	252
Vendor	0.03	0.01	0.58	0.23	< 0.005	0.01	0.17	0.18	< 0.005	0.05	0.05	—	546	546	0.01	0.08	0.93	571
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.77	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	233	233	< 0.005	0.01	0.01	236
Vendor	0.03	0.01	0.61	0.24	< 0.005	0.01	0.17	0.18	< 0.005	0.05	0.05	—	546	546	0.01	0.08	0.02	570
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.57	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	169	169	< 0.005	0.01	0.17	172
Vendor	0.02	0.01	0.43	0.17	< 0.005	0.01	0.11	0.12	< 0.005	0.03	0.04	—	390	390	0.01	0.06	0.29	408
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.0	28.0	< 0.005	< 0.005	0.03	28.4
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	64.6	64.6	< 0.005	0.01	0.05	67.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.68. Paving (2031) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.75	0.63	6.13	9.88	0.01	0.21	—	0.21	0.19	—	0.19	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.75	0.63	6.13	9.88	0.01	0.21	—	0.21	0.19	—	0.19	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	0.45	4.38	7.06	0.01	0.15	—	0.15	0.14	—	0.14	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.80	1.29	< 0.005	0.03	—	0.03	0.03	—	0.03	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	0.96	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	< 0.005	0.56	252
Vendor	0.03	0.01	0.58	0.23	< 0.005	0.01	0.17	0.18	< 0.005	0.05	0.05	—	546	546	0.01	0.08	0.93	571
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.77	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	233	233	< 0.005	0.01	0.01	236
Vendor	0.03	0.01	0.61	0.24	< 0.005	0.01	0.17	0.18	< 0.005	0.05	0.05	—	546	546	0.01	0.08	0.02	570
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.57	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	169	169	< 0.005	0.01	0.17	172
Vendor	0.02	0.01	0.43	0.17	< 0.005	0.01	0.11	0.12	< 0.005	0.03	0.04	—	390	390	0.01	0.06	0.29	408
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.0	28.0	< 0.005	< 0.005	0.03	28.4
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	64.6	64.6	< 0.005	0.01	0.05	67.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.69. Paving (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	0.61	6.00	9.86	0.01	0.20	—	0.20	0.18	—	0.18	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	0.61	6.00	9.86	0.01	0.20	—	0.20	0.18	—	0.18	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.44	4.30	7.06	0.01	0.14	—	0.14	0.13	—	0.13	—	1,082	1,082	0.04	0.01	—	1,086
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.78	1.29	< 0.005	0.03	—	0.03	0.02	—	0.02	—	179	179	0.01	< 0.005	—	180
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.90	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	248	248	< 0.005	< 0.005	0.49	249
Vendor	0.03	0.01	0.56	0.23	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	528	528	0.01	0.08	0.80	551
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.05	0.73	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	230	230	< 0.005	0.01	0.01	233
Vendor	0.03	0.01	0.59	0.23	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	528	528	0.01	0.08	0.02	551
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.54	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	167	167	< 0.005	< 0.005	0.15	168
Vendor	0.02	0.01	0.42	0.17	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.04	—	378	378	0.01	0.05	0.25	395
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.7	27.7	< 0.005	< 0.005	0.03	27.8
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	62.6	62.6	< 0.005	0.01	0.04	65.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.70. Paving (2032) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	0.61	6.00	9.86	0.01	0.20	—	0.20	0.18	—	0.18	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	0.61	6.00	9.86	0.01	0.20	—	0.20	0.18	—	0.18	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.44	4.30	7.06	0.01	0.14	—	0.14	0.13	—	0.13	—	1,082	1,082	0.04	0.01	—	1,086
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.78	1.29	< 0.005	0.03	—	0.03	0.02	—	0.02	—	179	179	0.01	< 0.005	—	180
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.90	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	248	248	< 0.005	< 0.005	0.49	249
Vendor	0.03	0.01	0.56	0.23	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	528	528	0.01	0.08	0.80	551
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.05	0.73	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	230	230	< 0.005	0.01	0.01	233
Vendor	0.03	0.01	0.59	0.23	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	528	528	0.01	0.08	0.02	551
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.54	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	167	167	< 0.005	< 0.005	0.15	168
Vendor	0.02	0.01	0.42	0.17	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.04	—	378	378	0.01	0.05	0.25	395
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.7	27.7	< 0.005	< 0.005	0.03	27.8
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	62.6	62.6	< 0.005	0.01	0.04	65.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.71. Paving (2033) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.70	0.59	5.91	9.84	0.01	0.18	—	0.18	0.17	—	0.17	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.70	0.59	5.91	9.84	0.01	0.18	—	0.18	0.17	—	0.17	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	0.42	4.22	7.03	0.01	0.13	—	0.13	0.12	—	0.12	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.77	1.28	< 0.005	0.02	—	0.02	0.02	—	0.02	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.86	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	245	245	< 0.005	< 0.005	0.44	245
Vendor	0.03	0.01	0.54	0.22	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	510	510	0.01	0.08	0.68	534
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.69	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.01	227
Vendor	0.03	0.01	0.57	0.23	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	511	511	0.01	0.08	0.02	533
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.51	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	165	165	< 0.005	< 0.005	0.13	165
Vendor	0.02	0.01	0.40	0.16	< 0.005	< 0.005	0.11	0.12	< 0.005	0.03	0.04	—	365	365	0.01	0.05	0.21	381
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.3	27.3	< 0.005	< 0.005	0.02	27.4
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	60.4	60.4	< 0.005	0.01	0.03	63.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.72. Paving (2033) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.70	0.59	5.91	9.84	0.01	0.18	—	0.18	0.17	—	0.17	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.70	0.59	5.91	9.84	0.01	0.18	—	0.18	0.17	—	0.17	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	0.42	4.22	7.03	0.01	0.13	—	0.13	0.12	—	0.12	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.77	1.28	< 0.005	0.02	—	0.02	0.02	—	0.02	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.86	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	245	245	< 0.005	< 0.005	0.44	245
Vendor	0.03	0.01	0.54	0.22	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	510	510	0.01	0.08	0.68	534
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.69	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.01	227
Vendor	0.03	0.01	0.57	0.23	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	511	511	0.01	0.08	0.02	533
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.51	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	165	165	< 0.005	< 0.005	0.13	165
Vendor	0.02	0.01	0.40	0.16	< 0.005	< 0.005	0.11	0.12	< 0.005	0.03	0.04	—	365	365	0.01	0.05	0.21	381
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.3	27.3	< 0.005	< 0.005	0.02	27.4
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	60.4	60.4	< 0.005	0.01	0.03	63.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.73. Paving (2034) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.68	0.58	5.86	9.82	0.01	0.18	—	0.18	0.16	—	0.16	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.68	0.58	5.86	9.82	0.01	0.18	—	0.18	0.16	—	0.16	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.49	0.41	4.18	7.02	0.01	0.13	—	0.13	0.12	—	0.12	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.76	1.28	< 0.005	0.02	—	0.02	0.02	—	0.02	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.81	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	242	242	< 0.005	< 0.005	0.38	242
Vendor	0.03	0.01	0.52	0.21	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	494	494	0.01	0.07	0.58	515
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.01	225
Vendor	0.03	0.01	0.55	0.22	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	494	494	0.01	0.07	0.02	515
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.48	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	163	163	< 0.005	< 0.005	0.12	163
Vendor	0.02	0.01	0.39	0.15	< 0.005	< 0.005	0.11	0.12	< 0.005	0.03	0.04	—	353	353	0.01	0.05	0.18	368
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.9	26.9	< 0.005	< 0.005	0.02	27.0
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.4	58.4	< 0.005	0.01	0.03	60.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.74. Paving (2034) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.68	0.58	5.86	9.82	0.01	0.18	—	0.18	0.16	—	0.16	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.68	0.58	5.86	9.82	0.01	0.18	—	0.18	0.16	—	0.16	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.49	0.41	4.18	7.02	0.01	0.13	—	0.13	0.12	—	0.12	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.76	1.28	< 0.005	0.02	—	0.02	0.02	—	0.02	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.81	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	242	242	< 0.005	< 0.005	0.38	242
Vendor	0.03	0.01	0.52	0.21	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	494	494	0.01	0.07	0.58	515
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.01	225
Vendor	0.03	0.01	0.55	0.22	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	494	494	0.01	0.07	0.02	515
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.48	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	163	163	< 0.005	< 0.005	0.12	163
Vendor	0.02	0.01	0.39	0.15	< 0.005	< 0.005	0.11	0.12	< 0.005	0.03	0.04	—	353	353	0.01	0.05	0.18	368
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.9	26.9	< 0.005	< 0.005	0.02	27.0
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.4	58.4	< 0.005	0.01	0.03	60.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.75. Paving (2035) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65	0.55	5.73	9.80	0.01	0.15	—	0.15	0.14	—	0.14	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65	0.55	5.73	9.80	0.01	0.15	—	0.15	0.14	—	0.14	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.46	0.39	4.09	7.00	0.01	0.11	—	0.11	0.10	—	0.10	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.75	1.28	< 0.005	0.02	—	0.02	0.02	—	0.02	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.77	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	239	239	< 0.005	< 0.005	0.33	240
Vendor	0.03	0.01	0.50	0.21	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	478	478	0.01	0.07	0.49	500
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.01	222
Vendor	0.03	0.01	0.53	0.21	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	478	478	0.01	0.07	0.01	500
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.46	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	161	161	< 0.005	< 0.005	0.10	161
Vendor	0.02	0.01	0.37	0.15	< 0.005	< 0.005	0.11	0.12	< 0.005	0.03	0.04	—	341	341	0.01	0.05	0.15	357
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.6	26.6	< 0.005	< 0.005	0.02	26.7
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	56.5	56.5	< 0.005	0.01	0.02	59.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.76. Paving (2035) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65	0.55	5.73	9.80	0.01	0.15	—	0.15	0.14	—	0.14	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65	0.55	5.73	9.80	0.01	0.15	—	0.15	0.14	—	0.14	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.46	0.39	4.09	7.00	0.01	0.11	—	0.11	0.10	—	0.10	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.75	1.28	< 0.005	0.02	—	0.02	0.02	—	0.02	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.77	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	239	239	< 0.005	< 0.005	0.33	240
Vendor	0.03	0.01	0.50	0.21	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	478	478	0.01	0.07	0.49	500
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.01	222
Vendor	0.03	0.01	0.53	0.21	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	478	478	0.01	0.07	0.01	500
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.46	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	161	161	< 0.005	< 0.005	0.10	161
Vendor	0.02	0.01	0.37	0.15	< 0.005	< 0.005	0.11	0.12	< 0.005	0.03	0.04	—	341	341	0.01	0.05	0.15	357
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.6	26.6	< 0.005	< 0.005	0.02	26.7
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	56.5	56.5	< 0.005	0.01	0.02	59.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.77. Paving (2036) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.63	0.53	5.62	9.78	0.01	0.14	—	0.14	0.13	—	0.13	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.63	0.53	5.62	9.78	0.01	0.14	—	0.14	0.13	—	0.13	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	0.38	4.03	7.01	0.01	0.10	—	0.10	0.09	—	0.09	—	1,082	1,082	0.04	0.01	—	1,086
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.73	1.28	< 0.005	0.02	—	0.02	0.02	—	0.02	—	179	179	0.01	< 0.005	—	180
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.73	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	236	236	< 0.005	< 0.005	0.28	237
Vendor	0.02	0.01	0.49	0.20	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	463	463	0.01	0.07	0.41	485
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	219	219	< 0.005	< 0.005	0.01	220
Vendor	0.02	0.01	0.52	0.21	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	464	464	0.01	0.07	0.01	485
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.44	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	160	160	< 0.005	< 0.005	0.09	160
Vendor	0.02	0.01	0.36	0.15	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.04	—	332	332	0.01	0.05	0.13	347
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.4	26.4	< 0.005	< 0.005	0.01	26.5
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	55.0	55.0	< 0.005	0.01	0.02	57.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.78. Paving (2036) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.63	0.53	5.62	9.78	0.01	0.14	—	0.14	0.13	—	0.13	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.63	0.53	5.62	9.78	0.01	0.14	—	0.14	0.13	—	0.13	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	0.38	4.03	7.01	0.01	0.10	—	0.10	0.09	—	0.09	—	1,082	1,082	0.04	0.01	—	1,086
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.73	1.28	< 0.005	0.02	—	0.02	0.02	—	0.02	—	179	179	0.01	< 0.005	—	180
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.73	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	236	236	< 0.005	< 0.005	0.28	237
Vendor	0.02	0.01	0.49	0.20	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	463	463	0.01	0.07	0.41	485
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	219	219	< 0.005	< 0.005	0.01	220
Vendor	0.02	0.01	0.52	0.21	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	464	464	0.01	0.07	0.01	485
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.44	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	160	160	< 0.005	< 0.005	0.09	160
Vendor	0.02	0.01	0.36	0.15	< 0.005	< 0.005	0.12	0.12	< 0.005	0.03	0.04	—	332	332	0.01	0.05	0.13	347
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.4	26.4	< 0.005	< 0.005	0.01	26.5
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	55.0	55.0	< 0.005	0.01	0.02	57.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.79. Paving (2037) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.61	0.51	5.50	9.77	0.01	0.12	—	0.12	0.11	—	0.11	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.61	0.51	5.50	9.77	0.01	0.12	—	0.12	0.11	—	0.11	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42	0.35	3.79	6.73	0.01	0.09	—	0.09	0.08	—	0.08	—	1,041	1,041	0.04	0.01	—	1,044
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.69	1.23	< 0.005	0.02	—	0.02	0.01	—	0.01	—	172	172	0.01	< 0.005	—	173
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.71	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	234	234	< 0.005	< 0.005	0.24	235
Vendor	0.02	0.01	0.47	0.20	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	451	451	0.01	0.07	0.34	471
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.56	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	217	217	< 0.005	< 0.005	0.01	218
Vendor	0.02	0.01	0.50	0.21	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	451	451	0.01	0.07	0.01	471
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.40	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.07	153
Vendor	0.02	0.01	0.34	0.14	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	311	311	0.01	0.05	0.10	324
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	0.01	25.3
Vendor	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	51.4	51.4	< 0.005	0.01	0.02	53.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.80. Paving (2037) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.61	0.51	5.50	9.77	0.01	0.12	—	0.12	0.11	—	0.11	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.61	0.51	5.50	9.77	0.01	0.12	—	0.12	0.11	—	0.11	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42	0.35	3.79	6.73	0.01	0.09	—	0.09	0.08	—	0.08	—	1,041	1,041	0.04	0.01	—	1,044
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.69	1.23	< 0.005	0.02	—	0.02	0.01	—	0.01	—	172	172	0.01	< 0.005	—	173
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.71	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	234	234	< 0.005	< 0.005	0.24	235
Vendor	0.02	0.01	0.47	0.20	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	451	451	0.01	0.07	0.34	471
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.56	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	217	217	< 0.005	< 0.005	0.01	218
Vendor	0.02	0.01	0.50	0.21	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	451	451	0.01	0.07	0.01	471
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.40	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.07	153
Vendor	0.02	0.01	0.34	0.14	< 0.005	< 0.005	0.11	0.11	< 0.005	0.03	0.03	—	311	311	0.01	0.05	0.10	324
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	0.01	25.3
Vendor	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	51.4	51.4	< 0.005	0.01	0.02	53.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.81. Architectural Coating (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	0.46	3.81	4.17	0.01	0.14	—	0.14	0.13	—	0.13	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	0.46	3.81	4.17	0.01	0.14	—	0.14	0.13	—	0.13	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.39	0.33	2.72	2.97	0.01	0.10	—	0.10	0.09	—	0.09	—	801	801	0.03	0.01	—	804
Architectural Coatings	3.33	3.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.50	0.54	< 0.005	0.02	—	0.02	0.02	—	0.02	—	133	133	0.01	< 0.005	—	133
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.15	0.14	2.32	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	529	529	0.01	0.02	1.58	536
Vendor	0.02	0.01	0.33	0.13	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	299	299	0.01	0.04	0.67	312
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	0.16	1.86	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	491	491	0.01	0.02	0.04	496
Vendor	0.02	0.01	0.35	0.13	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	299	299	0.01	0.04	0.02	312
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.11	1.38	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	355	355	0.01	0.01	0.49	360
Vendor	0.01	0.01	0.24	0.09	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	213	213	< 0.005	0.03	0.21	222
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.25	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.8	58.8	< 0.005	< 0.005	0.08	59.6
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	35.3	35.3	< 0.005	< 0.005	0.03	36.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.82. Architectural Coating (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	0.46	3.81	4.17	0.01	0.14	—	0.14	0.13	—	0.13	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	0.46	3.81	4.17	0.01	0.14	—	0.14	0.13	—	0.13	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.39	0.33	2.72	2.97	0.01	0.10	—	0.10	0.09	—	0.09	—	801	801	0.03	0.01	—	804

Architect Coatings	3.33	3.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.50	0.54	< 0.005	0.02	—	0.02	0.02	—	0.02	—	133	133	0.01	< 0.005	—	133
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.15	0.14	2.32	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	529	529	0.01	0.02	1.58	536
Vendor	0.02	0.01	0.33	0.13	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	299	299	0.01	0.04	0.67	312
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	0.16	1.86	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	491	491	0.01	0.02	0.04	496
Vendor	0.02	0.01	0.35	0.13	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	299	299	0.01	0.04	0.02	312
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.11	1.38	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	355	355	0.01	0.01	0.49	360
Vendor	0.01	0.01	0.24	0.09	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	213	213	< 0.005	0.03	0.21	222
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.02	0.02	0.02	0.25	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.8	58.8	< 0.005	< 0.005	0.08	59.6
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	35.3	35.3	< 0.005	< 0.005	0.03	36.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.83. Architectural Coating (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	0.44	3.58	4.13	0.01	0.13	—	0.13	0.12	—	0.12	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	0.44	3.58	4.13	0.01	0.13	—	0.13	0.12	—	0.12	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.38	0.32	2.56	2.95	0.01	0.09	—	0.09	0.09	—	0.09	—	803	803	0.03	0.01	—	806
Architectural Coatings	3.34	3.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.47	0.54	< 0.005	0.02	—	0.02	0.02	—	0.02	—	133	133	0.01	< 0.005	—	133
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	0.12	2.18	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	520	520	0.01	0.02	1.42	527
Vendor	0.02	0.01	0.31	0.12	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	291	291	0.01	0.04	0.60	304
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.12	0.14	1.74	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	482	482	0.01	0.02	0.04	488
Vendor	0.02	0.01	0.33	0.13	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	291	291	0.01	0.04	0.02	304

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.10	1.30	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	350	350	< 0.005	0.01	0.44	355
Vendor	0.01	< 0.005	0.23	0.09	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	208	208	< 0.005	0.03	0.18	217
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.24	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.0	58.0	< 0.005	< 0.005	0.07	58.7
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.4	34.4	< 0.005	< 0.005	0.03	35.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.84. Architectural Coating (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	0.44	3.58	4.13	0.01	0.13	—	0.13	0.12	—	0.12	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.53	0.44	3.58	4.13	0.01	0.13	—	0.13	0.12	—	0.12	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.38	0.32	2.56	2.95	0.01	0.09	—	0.09	0.09	—	0.09	—	803	803	0.03	0.01	—	806
Architectural Coatings	3.34	3.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.47	0.54	< 0.005	0.02	—	0.02	0.02	—	0.02	—	133	133	0.01	< 0.005	—	133
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	0.12	2.18	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	520	520	0.01	0.02	1.42	527

Vendor	0.02	0.01	0.31	0.12	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	291	291	0.01	0.04	0.60	304
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.12	0.14	1.74	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	482	482	0.01	0.02	0.04	488
Vendor	0.02	0.01	0.33	0.13	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	291	291	0.01	0.04	0.02	304
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.10	1.30	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	350	350	< 0.005	0.01	0.44	355
Vendor	0.01	< 0.005	0.23	0.09	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	208	208	< 0.005	0.03	0.18	217
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.24	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.0	58.0	< 0.005	< 0.005	0.07	58.7
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.4	34.4	< 0.005	< 0.005	0.03	35.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.85. Architectural Coating (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.43	3.47	4.12	0.01	0.12	—	0.12	0.11	—	0.11	—	1,124	1,124	0.05	0.01	—	1,128

Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.43	3.47	4.12	0.01	0.12	—	0.12	0.11	—	0.11	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	0.31	2.48	2.94	0.01	0.09	—	0.09	0.08	—	0.08	—	803	803	0.03	0.01	—	806
Architectural Coatings	3.34	3.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.45	0.54	< 0.005	0.02	—	0.02	0.01	—	0.01	—	133	133	0.01	< 0.005	—	133

Architectural Coating	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.12	0.10	2.05	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	511	511	0.01	0.02	1.26	518
Vendor	0.02	0.01	0.30	0.12	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	282	282	0.01	0.04	0.53	295
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.12	1.64	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	474	474	0.01	0.02	0.03	480
Vendor	0.02	0.01	0.32	0.12	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	282	282	0.01	0.04	0.01	294
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.08	0.09	1.22	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	344	344	< 0.005	0.01	0.39	349
Vendor	0.01	< 0.005	0.23	0.09	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	202	202	< 0.005	0.03	0.16	210
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	57.0	57.0	< 0.005	< 0.005	0.06	57.7
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	33.4	33.4	< 0.005	< 0.005	0.03	34.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.86. Architectural Coating (2030) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.43	3.47	4.12	0.01	0.12	—	0.12	0.11	—	0.11	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.43	3.47	4.12	0.01	0.12	—	0.12	0.11	—	0.11	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	0.31	2.48	2.94	0.01	0.09	—	0.09	0.08	—	0.08	—	803	803	0.03	0.01	—	806
Architectural Coatings	3.34	3.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.45	0.54	< 0.005	0.02	—	0.02	0.01	—	0.01	—	133	133	0.01	< 0.005	—	133
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.12	0.10	2.05	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	511	511	0.01	0.02	1.26	518
Vendor	0.02	0.01	0.30	0.12	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	282	282	0.01	0.04	0.53	295
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.12	1.64	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	474	474	0.01	0.02	0.03	480
Vendor	0.02	0.01	0.32	0.12	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	282	282	0.01	0.04	0.01	294
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.08	0.09	1.22	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	344	344	< 0.005	0.01	0.39	349
Vendor	0.01	< 0.005	0.23	0.09	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	202	202	< 0.005	0.03	0.16	210
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	57.0	57.0	< 0.005	< 0.005	0.06	57.7

Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	33.4	33.4	< 0.005	< 0.005	0.03	34.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.87. Architectural Coating (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	0.42	3.31	4.08	0.01	0.12	—	0.12	0.11	—	0.11	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	0.42	3.31	4.08	0.01	0.12	—	0.12	0.11	—	0.11	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.36	0.30	2.36	2.92	0.01	0.09	—	0.09	0.08	—	0.08	—	803	803	0.03	0.01	—	806
Architectural Coatings	3.34	3.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.43	0.53	< 0.005	0.02	—	0.02	0.01	—	0.01	—	133	133	0.01	< 0.005	—	133
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.10	1.92	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	503	503	0.01	< 0.005	1.12	505
Vendor	0.01	0.01	0.29	0.12	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	273	273	0.01	0.04	0.46	285
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.12	1.54	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	467	467	0.01	0.02	0.03	472
Vendor	0.01	0.01	0.31	0.12	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	273	273	0.01	0.04	0.01	285
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.09	1.15	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	339	339	< 0.005	0.01	0.35	343

Vendor	0.01	< 0.005	0.22	0.08	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	195	195	< 0.005	0.03	0.14	204
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.21	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.1	56.1	< 0.005	< 0.005	0.06	56.8
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	32.3	32.3	< 0.005	< 0.005	0.02	33.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.88. Architectural Coating (2031) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	0.42	3.31	4.08	0.01	0.12	—	0.12	0.11	—	0.11	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	0.42	3.31	4.08	0.01	0.12	—	0.12	0.11	—	0.11	—	1,124	1,124	0.05	0.01	—	1,128

Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.30	2.36	2.92	0.01	0.09	—	0.09	0.08	—	0.08	—	803	803	0.03	0.01	—	806
Architectural Coatings	3.34	3.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.43	0.53	< 0.005	0.02	—	0.02	0.01	—	0.01	—	133	133	0.01	< 0.005	—	133
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.10	1.92	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	503	503	0.01	< 0.005	1.12	505
Vendor	0.01	0.01	0.29	0.12	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	273	273	0.01	0.04	0.46	285
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.12	1.54	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	467	467	0.01	0.02	0.03	472
Vendor	0.01	0.01	0.31	0.12	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	273	273	0.01	0.04	0.01	285
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.09	1.15	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	339	339	< 0.005	0.01	0.35	343
Vendor	0.01	< 0.005	0.22	0.08	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	195	195	< 0.005	0.03	0.14	204
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.21	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.1	56.1	< 0.005	< 0.005	0.06	56.8
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	32.3	32.3	< 0.005	< 0.005	0.02	33.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.89. Architectural Coating (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.49	0.41	3.13	4.02	0.01	0.11	—	0.11	0.10	—	0.10	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.49	0.41	3.13	4.02	0.01	0.11	—	0.11	0.10	—	0.10	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.29	2.24	2.88	0.01	0.08	—	0.08	0.07	—	0.07	—	805	805	0.03	0.01	—	808
Architectural Coatings	3.35	3.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.41	0.53	< 0.005	0.01	—	0.01	0.01	—	0.01	—	133	133	0.01	< 0.005	—	134
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.08	1.81	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	496	496	< 0.005	< 0.005	0.99	497
Vendor	0.01	0.01	0.28	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	264	264	0.01	0.04	0.40	276
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.10	1.45	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	460	460	0.01	0.02	0.03	466
Vendor	0.01	0.01	0.30	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	264	264	0.01	0.04	0.01	275
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.07	1.08	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	335	335	< 0.005	< 0.005	0.31	336
Vendor	0.01	< 0.005	0.21	0.08	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	189	189	< 0.005	0.03	0.12	197
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.01	0.20	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	55.4	55.4	< 0.005	< 0.005	0.05	55.6
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	31.3	31.3	< 0.005	< 0.005	0.02	32.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.90. Architectural Coating (2032) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.49	0.41	3.13	4.02	0.01	0.11	—	0.11	0.10	—	0.10	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.49	0.41	3.13	4.02	0.01	0.11	—	0.11	0.10	—	0.10	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.29	2.24	2.88	0.01	0.08	—	0.08	0.07	—	0.07	—	805	805	0.03	0.01	—	808
Architectural Coatings	3.35	3.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.41	0.53	< 0.005	0.01	—	0.01	0.01	—	0.01	—	133	133	0.01	< 0.005	—	134

Architect Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.08	1.81	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	496	496	< 0.005	< 0.005	0.99	497
Vendor	0.01	0.01	0.28	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	264	264	0.01	0.04	0.40	276
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.10	1.45	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	460	460	0.01	0.02	0.03	466
Vendor	0.01	0.01	0.30	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	264	264	0.01	0.04	0.01	275
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.07	1.08	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	335	335	< 0.005	< 0.005	0.31	336
Vendor	0.01	< 0.005	0.21	0.08	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	189	189	< 0.005	0.03	0.12	197
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.01	0.20	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	55.4	55.4	< 0.005	< 0.005	0.05	55.6
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	31.3	31.3	< 0.005	< 0.005	0.02	32.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.91. Architectural Coating (2033) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.40	2.98	4.02	0.01	0.09	—	0.09	0.09	—	0.09	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.40	2.98	4.02	0.01	0.09	—	0.09	0.09	—	0.09	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.34	0.28	2.13	2.87	0.01	0.07	—	0.07	0.06	—	0.06	—	803	803	0.03	0.01	—	806
Architectural Coatings	3.34	3.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.39	0.52	< 0.005	0.01	—	0.01	0.01	—	0.01	—	133	133	0.01	< 0.005	—	133
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.11	0.08	1.71	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	489	489	< 0.005	< 0.005	0.87	491
Vendor	0.01	0.01	0.27	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	255	255	0.01	0.04	0.34	267
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.10	1.37	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	454	454	0.01	< 0.005	0.02	455
Vendor	0.01	0.01	0.28	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	255	255	0.01	0.04	0.01	267
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	1.02	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	330	330	< 0.005	< 0.005	0.27	330
Vendor	0.01	< 0.005	0.20	0.08	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	182	182	< 0.005	0.03	0.10	191
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.19	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	54.6	54.6	< 0.005	< 0.005	0.04	54.7
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.2	30.2	< 0.005	< 0.005	0.02	31.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.92. Architectural Coating (2033) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.40	2.98	4.02	0.01	0.09	—	0.09	0.09	—	0.09	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.40	2.98	4.02	0.01	0.09	—	0.09	0.09	—	0.09	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.34	0.28	2.13	2.87	0.01	0.07	—	0.07	0.06	—	0.06	—	803	803	0.03	0.01	—	806

Architect Coatings	3.34	3.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.39	0.52	< 0.005	0.01	—	0.01	0.01	—	0.01	—	133	133	0.01	< 0.005	—	133
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.11	0.08	1.71	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	489	489	< 0.005	< 0.005	0.87	491
Vendor	0.01	0.01	0.27	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	255	255	0.01	0.04	0.34	267
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.10	1.37	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	454	454	0.01	< 0.005	0.02	455
Vendor	0.01	0.01	0.28	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	255	255	0.01	0.04	0.01	267
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	1.02	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	330	330	< 0.005	< 0.005	0.27	330
Vendor	0.01	< 0.005	0.20	0.08	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	182	182	< 0.005	0.03	0.10	191
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.01	0.19	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	54.6	54.6	< 0.005	< 0.005	0.04	54.7
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.2	30.2	< 0.005	< 0.005	0.02	31.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.93. Architectural Coating (2034) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.39	2.88	4.01	0.01	0.09	—	0.09	0.08	—	0.08	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.39	2.88	4.01	0.01	0.09	—	0.09	0.08	—	0.08	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	2.06	2.87	0.01	0.06	—	0.06	0.06	—	0.06	—	803	803	0.03	0.01	—	806
Architectural Coatings	3.34	3.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.38	0.52	< 0.005	0.01	—	0.01	0.01	—	0.01	—	133	133	0.01	< 0.005	—	133
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.07	1.62	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	483	483	< 0.005	< 0.005	0.76	485
Vendor	0.01	0.01	0.26	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	247	247	0.01	0.04	0.29	258
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.09	1.29	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	448	448	0.01	< 0.005	0.02	449
Vendor	0.01	0.01	0.27	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	247	247	0.01	0.04	0.01	258

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.96	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	325	325	< 0.005	< 0.005	0.23	326
Vendor	0.01	< 0.005	0.19	0.08	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	176	176	< 0.005	0.03	0.09	184
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.18	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	53.9	53.9	< 0.005	< 0.005	0.04	54.0
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.2	29.2	< 0.005	< 0.005	0.01	30.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.94. Architectural Coating (2034) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.39	2.88	4.01	0.01	0.09	—	0.09	0.08	—	0.08	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.47	0.39	2.88	4.01	0.01	0.09	—	0.09	0.08	—	0.08	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	2.06	2.87	0.01	0.06	—	0.06	0.06	—	0.06	—	803	803	0.03	0.01	—	806
Architectural Coatings	3.34	3.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.38	0.52	< 0.005	0.01	—	0.01	0.01	—	0.01	—	133	133	0.01	< 0.005	—	133
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.07	1.62	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	483	483	< 0.005	< 0.005	0.76	485

Vendor	0.01	0.01	0.26	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	247	247	0.01	0.04	0.29	258
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.09	1.29	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	448	448	0.01	< 0.005	0.02	449
Vendor	0.01	0.01	0.27	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	247	247	0.01	0.04	0.01	258
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.96	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	325	325	< 0.005	< 0.005	0.23	326
Vendor	0.01	< 0.005	0.19	0.08	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	176	176	< 0.005	0.03	0.09	184
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.18	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	53.9	53.9	< 0.005	< 0.005	0.04	54.0
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.2	29.2	< 0.005	< 0.005	0.01	30.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.95. Architectural Coating (2035) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	0.38	2.73	3.93	0.01	0.09	—	0.09	0.08	—	0.08	—	1,124	1,124	0.05	0.01	—	1,128

Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	0.38	2.73	3.93	0.01	0.09	—	0.09	0.08	—	0.08	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	1.95	2.80	0.01	0.06	—	0.06	0.06	—	0.06	—	803	803	0.03	0.01	—	806
Architectural Coatings	3.34	3.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.36	0.51	< 0.005	0.01	—	0.01	0.01	—	0.01	—	133	133	0.01	< 0.005	—	133

Architectural Coating	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.07	1.54	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	478	478	< 0.005	< 0.005	0.66	479
Vendor	0.01	0.01	0.25	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	239	239	0.01	0.04	0.24	250
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.09	1.23	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	443	443	< 0.005	< 0.005	0.02	444
Vendor	0.01	0.01	0.27	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	239	239	0.01	0.04	0.01	250
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.92	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	322	322	< 0.005	< 0.005	0.20	323
Vendor	0.01	< 0.005	0.19	0.08	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	171	171	< 0.005	0.03	0.08	178
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.17	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	53.3	53.3	< 0.005	< 0.005	0.03	53.4
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	28.3	28.3	< 0.005	< 0.005	0.01	29.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.96. Architectural Coating (2035) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	0.38	2.73	3.93	0.01	0.09	—	0.09	0.08	—	0.08	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	0.38	2.73	3.93	0.01	0.09	—	0.09	0.08	—	0.08	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	1.95	2.80	0.01	0.06	—	0.06	0.06	—	0.06	—	803	803	0.03	0.01	—	806
Architectural Coatings	3.34	3.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.36	0.51	< 0.005	0.01	—	0.01	0.01	—	0.01	—	133	133	0.01	< 0.005	—	133
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.07	1.54	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	478	478	< 0.005	< 0.005	0.66	479
Vendor	0.01	0.01	0.25	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	239	239	0.01	0.04	0.24	250
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.09	1.23	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	443	443	< 0.005	< 0.005	0.02	444
Vendor	0.01	0.01	0.27	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	239	239	0.01	0.04	0.01	250
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.92	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	322	322	< 0.005	< 0.005	0.20	323
Vendor	0.01	< 0.005	0.19	0.08	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	171	171	< 0.005	0.03	0.08	178
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.17	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	53.3	53.3	< 0.005	< 0.005	0.03	53.4

Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	28.3	28.3	< 0.005	< 0.005	0.01	29.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.97. Architectural Coating (2036) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.44	0.37	2.55	3.83	0.01	0.08	—	0.08	0.07	—	0.07	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.44	0.37	2.55	3.83	0.01	0.08	—	0.08	0.07	—	0.07	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.32	0.26	1.83	2.74	0.01	0.06	—	0.06	0.05	—	0.05	—	805	805	0.03	0.01	—	808
Architectural Coatings	3.35	3.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.33	0.50	< 0.005	0.01	—	0.01	0.01	—	0.01	—	133	133	0.01	< 0.005	—	134
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.07	1.47	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	473	473	< 0.005	< 0.005	0.57	474
Vendor	0.01	0.01	0.24	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	232	232	< 0.005	0.04	0.20	242
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.08	1.17	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	439	439	< 0.005	< 0.005	0.01	440
Vendor	0.01	0.01	0.26	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	232	232	< 0.005	0.04	0.01	243
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.05	0.88	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	319	319	< 0.005	< 0.005	0.18	320

Vendor	0.01	< 0.005	0.18	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	166	166	< 0.005	0.03	0.06	174
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	52.9	52.9	< 0.005	< 0.005	0.03	53.0
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.5	27.5	< 0.005	< 0.005	0.01	28.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.98. Architectural Coating (2036) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.44	0.37	2.55	3.83	0.01	0.08	—	0.08	0.07	—	0.07	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.44	0.37	2.55	3.83	0.01	0.08	—	0.08	0.07	—	0.07	—	1,124	1,124	0.05	0.01	—	1,128

Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.26	1.83	2.74	0.01	0.06	—	0.06	0.05	—	0.05	—	805	805	0.03	0.01	—	808
Architectural Coatings	3.35	3.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.33	0.50	< 0.005	0.01	—	0.01	0.01	—	0.01	—	133	133	0.01	< 0.005	—	134
Architectural Coatings	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	0.07	1.47	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	473	473	< 0.005	< 0.005	0.57	474
Vendor	0.01	0.01	0.24	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	232	232	< 0.005	0.04	0.20	242
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.08	1.17	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	439	439	< 0.005	< 0.005	0.01	440
Vendor	0.01	0.01	0.26	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	232	232	< 0.005	0.04	0.01	243
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.05	0.88	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	319	319	< 0.005	< 0.005	0.18	320
Vendor	0.01	< 0.005	0.18	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	166	166	< 0.005	0.03	0.06	174
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	52.9	52.9	< 0.005	< 0.005	0.03	53.0
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.5	27.5	< 0.005	< 0.005	0.01	28.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.99. Architectural Coating (2037) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.36	2.44	3.72	0.01	0.08	—	0.08	0.07	—	0.07	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.36	2.44	3.72	0.01	0.08	—	0.08	0.07	—	0.07	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.25	1.68	2.56	0.01	0.05	—	0.05	0.05	—	0.05	—	774	774	0.03	0.01	—	777
Architectural Coatings	3.22	3.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.05	0.31	0.47	< 0.005	0.01	—	0.01	0.01	—	0.01	—	128	128	0.01	< 0.005	—	129
Architectural Coatings	0.59	0.59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.07	1.41	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	469	469	< 0.005	< 0.005	0.49	470
Vendor	0.01	0.01	0.24	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	225	225	< 0.005	0.03	0.17	235
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.07	1.12	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	435	435	< 0.005	< 0.005	0.01	436
Vendor	0.01	0.01	0.25	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	226	226	< 0.005	0.03	< 0.005	235
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.80	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	304	304	< 0.005	< 0.005	0.14	305
Vendor	0.01	< 0.005	0.17	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	155	155	< 0.005	0.02	0.05	162
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.15	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	50.4	50.4	< 0.005	< 0.005	0.02	50.5
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.7	25.7	< 0.005	< 0.005	0.01	26.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.100. Architectural Coating (2037) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.43	0.36	2.44	3.72	0.01	0.08	—	0.08	0.07	—	0.07	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.36	2.44	3.72	0.01	0.08	—	0.08	0.07	—	0.07	—	1,124	1,124	0.05	0.01	—	1,128
Architectural Coatings	4.68	4.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.25	1.68	2.56	0.01	0.05	—	0.05	0.05	—	0.05	—	774	774	0.03	0.01	—	777
Architectural Coatings	3.22	3.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.05	0.31	0.47	< 0.005	0.01	—	0.01	0.01	—	0.01	—	128	128	0.01	< 0.005	—	129

Architect Coatings	0.59	0.59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.07	1.41	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	469	469	< 0.005	< 0.005	0.49	470
Vendor	0.01	0.01	0.24	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	225	225	< 0.005	0.03	0.17	235
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.07	1.12	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	435	435	< 0.005	< 0.005	0.01	436
Vendor	0.01	0.01	0.25	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	226	226	< 0.005	0.03	< 0.005	235
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.80	0.00	0.00	0.33	0.33	0.00	0.08	0.08	—	304	304	< 0.005	< 0.005	0.14	305
Vendor	0.01	< 0.005	0.17	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	155	155	< 0.005	0.02	0.05	162
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.15	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	50.4	50.4	< 0.005	< 0.005	0.02	50.5
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.7	25.7	< 0.005	< 0.005	0.01	26.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	3.06	2.85	1.89	22.1	0.06	0.03	6.40	6.43	0.03	1.62	1.65	—	6,194	6,194	0.22	0.25	4.84	6,278
Single Family Housing	0.60	0.56	0.37	4.34	0.01	0.01	1.26	1.26	0.01	0.32	0.32	—	1,218	1,218	0.04	0.05	0.95	1,234
Strip Mall	0.52	0.48	0.32	3.70	0.01	< 0.005	1.07	1.07	< 0.005	0.27	0.28	—	1,036	1,036	0.04	0.04	0.81	1,050
Office Park	0.83	0.78	0.51	5.93	0.02	0.01	1.71	1.72	0.01	0.43	0.44	—	1,657	1,657	0.06	0.07	1.29	1,679
Total	5.02	4.67	3.08	36.0	0.10	0.05	10.4	10.5	0.05	2.65	2.69	—	10,103	10,103	0.36	0.40	7.90	10,241
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	2.98	2.76	2.11	20.0	0.06	0.03	6.40	6.43	0.03	1.62	1.65	—	5,839	5,839	0.24	0.26	0.13	5,923
Single Family Housing	0.58	0.54	0.42	3.92	0.01	0.01	1.26	1.26	0.01	0.32	0.32	—	1,148	1,148	0.05	0.05	0.02	1,164
Strip Mall	0.51	0.47	0.36	3.36	0.01	< 0.005	1.07	1.07	< 0.005	0.27	0.28	—	976	976	0.04	0.04	0.02	990
Office Park	0.81	0.75	0.57	5.37	0.02	0.01	1.71	1.72	0.01	0.43	0.44	—	1,562	1,562	0.06	0.07	0.03	1,585
Total	4.88	4.52	3.45	32.6	0.09	0.05	10.4	10.5	0.05	2.65	2.69	—	9,525	9,525	0.39	0.43	0.20	9,663
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments Mid Rise	0.54	0.50	0.37	3.67	0.01	0.01	1.08	1.09	0.01	0.28	0.28	—	979	979	0.04	0.04	0.35	993
Single Family Housing	0.11	0.10	0.07	0.72	< 0.005	< 0.005	0.21	0.21	< 0.005	0.05	0.06	—	192	192	0.01	0.01	0.07	195
Strip Mall	0.09	0.09	0.06	0.62	< 0.005	< 0.005	0.18	0.18	< 0.005	0.05	0.05	—	164	164	0.01	0.01	0.06	166
Office Park	0.15	0.14	0.10	0.99	< 0.005	< 0.005	0.29	0.29	< 0.005	0.07	0.07	—	262	262	0.01	0.01	0.09	266
Total	0.88	0.82	0.61	6.00	0.02	0.01	1.77	1.78	0.01	0.45	0.46	—	1,597	1,597	0.06	0.07	0.56	1,620

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	3.06	2.85	1.89	22.1	0.06	0.03	6.40	6.43	0.03	1.62	1.65	—	6,194	6,194	0.22	0.25	4.84	6,278
Single Family Housing	0.60	0.56	0.37	4.34	0.01	0.01	1.26	1.26	0.01	0.32	0.32	—	1,218	1,218	0.04	0.05	0.95	1,234
Strip Mall	0.52	0.48	0.32	3.70	0.01	< 0.005	1.07	1.07	< 0.005	0.27	0.28	—	1,036	1,036	0.04	0.04	0.81	1,050
Office Park	0.83	0.78	0.51	5.93	0.02	0.01	1.71	1.72	0.01	0.43	0.44	—	1,657	1,657	0.06	0.07	1.29	1,679
Total	5.02	4.67	3.08	36.0	0.10	0.05	10.4	10.5	0.05	2.65	2.69	—	10,103	10,103	0.36	0.40	7.90	10,241
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments Mid Rise	2.98	2.76	2.11	20.0	0.06	0.03	6.40	6.43	0.03	1.62	1.65	—	5,839	5,839	0.24	0.26	0.13	5,923
Single Family Housing	0.58	0.54	0.42	3.92	0.01	0.01	1.26	1.26	0.01	0.32	0.32	—	1,148	1,148	0.05	0.05	0.02	1,164
Strip Mall	0.51	0.47	0.36	3.36	0.01	< 0.005	1.07	1.07	< 0.005	0.27	0.28	—	976	976	0.04	0.04	0.02	990
Office Park	0.81	0.75	0.57	5.37	0.02	0.01	1.71	1.72	0.01	0.43	0.44	—	1,562	1,562	0.06	0.07	0.03	1,585
Total	4.88	4.52	3.45	32.6	0.09	0.05	10.4	10.5	0.05	2.65	2.69	—	9,525	9,525	0.39	0.43	0.20	9,663
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.54	0.50	0.37	3.67	0.01	0.01	1.08	1.09	0.01	0.28	0.28	—	979	979	0.04	0.04	0.35	993
Single Family Housing	0.11	0.10	0.07	0.72	< 0.005	< 0.005	0.21	0.21	< 0.005	0.05	0.06	—	192	192	0.01	0.01	0.07	195
Strip Mall	0.09	0.09	0.06	0.62	< 0.005	< 0.005	0.18	0.18	< 0.005	0.05	0.05	—	164	164	0.01	0.01	0.06	166
Office Park	0.15	0.14	0.10	0.99	< 0.005	< 0.005	0.29	0.29	< 0.005	0.07	0.07	—	262	262	0.01	0.01	0.09	266
Total	0.88	0.82	0.61	6.00	0.02	0.01	1.77	1.78	0.01	0.45	0.46	—	1,597	1,597	0.06	0.07	0.56	1,620

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments	—	—	—	—	—	—	—	—	—	—	—	—	877	877	0.06	0.01	—	880
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	618	618	0.04	0.01	—	620
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	37.1	37.1	< 0.005	< 0.005	—	37.3
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	910	910	0.07	0.01	—	914
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,441	2,441	0.18	0.02	—	2,452
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	877	877	0.06	0.01	—	880
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	618	618	0.04	0.01	—	620
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	37.1	37.1	< 0.005	< 0.005	—	37.3
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	910	910	0.07	0.01	—	914
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,441	2,441	0.18	0.02	—	2,452
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	145	145	0.01	< 0.005	—	146
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	102	102	0.01	< 0.005	—	103
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	6.14	6.14	< 0.005	< 0.005	—	6.17
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	151	151	0.01	< 0.005	—	151

Total	—	—	—	—	—	—	—	—	—	—	—	—	404	404	0.03	< 0.005	—	406

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	880	880	0.06	0.01	—	884
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	622	622	0.05	0.01	—	625
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	37.1	37.1	< 0.005	< 0.005	—	37.3
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	910	910	0.07	0.01	—	914
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,450	2,450	0.18	0.02	—	2,460
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	880	880	0.06	0.01	—	884
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	622	622	0.05	0.01	—	625
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	37.1	37.1	< 0.005	< 0.005	—	37.3
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	910	910	0.07	0.01	—	914
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,450	2,450	0.18	0.02	—	2,460

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	146	146	0.01	< 0.005	—	146
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	103	103	0.01	< 0.005	—	104
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	6.14	6.14	< 0.005	< 0.005	—	6.17
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	151	151	0.01	< 0.005	—	151
Total	—	—	—	—	—	—	—	—	—	—	—	—	406	406	0.03	< 0.005	—	407

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.06	0.03	0.54	0.23	< 0.005	0.04	—	0.04	0.04	—	0.04	—	684	684	0.06	< 0.005	—	686
Single Family Housing	0.12	0.06	1.01	0.43	0.01	0.08	—	0.08	0.08	—	0.08	—	1,280	1,280	0.11	< 0.005	—	1,284
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.73	4.73	< 0.005	< 0.005	—	4.75
Office Park	0.03	0.01	0.25	0.21	< 0.005	0.02	—	0.02	0.02	—	0.02	—	296	296	0.03	< 0.005	—	297
Total	0.21	0.10	1.80	0.87	0.01	0.14	—	0.14	0.14	—	0.14	—	2,265	2,265	0.20	< 0.005	—	2,271
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments Mid Rise	0.06	0.03	0.54	0.23	< 0.005	0.04	—	0.04	0.04	—	0.04	—	684	684	0.06	< 0.005	—	686
Single Family Housing	0.12	0.06	1.01	0.43	0.01	0.08	—	0.08	0.08	—	0.08	—	1,280	1,280	0.11	< 0.005	—	1,284
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.73	4.73	< 0.005	< 0.005	—	4.75
Office Park	0.03	0.01	0.25	0.21	< 0.005	0.02	—	0.02	0.02	—	0.02	—	296	296	0.03	< 0.005	—	297
Total	0.21	0.10	1.80	0.87	0.01	0.14	—	0.14	0.14	—	0.14	—	2,265	2,265	0.20	< 0.005	—	2,271
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.01	0.01	0.10	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	113	113	0.01	< 0.005	—	114
Single Family Housing	0.02	0.01	0.18	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	212	212	0.02	< 0.005	—	213
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.78	0.78	< 0.005	< 0.005	—	0.79
Office Park	< 0.005	< 0.005	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	49.0	49.0	< 0.005	< 0.005	—	49.2
Total	0.04	0.02	0.33	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	375	375	0.03	< 0.005	—	376

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.06	0.03	0.53	0.23	< 0.005	0.04	—	0.04	0.04	—	0.04	—	678	678	0.06	< 0.005	—	680

Single Family Housing	0.12	0.06	1.00	0.42	0.01	0.08	—	0.08	0.08	—	0.08	—	1,264	1,264	0.11	< 0.005	—	1,268
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.73	4.73	< 0.005	< 0.005	—	4.75
Office Park	0.03	0.01	0.25	0.21	< 0.005	0.02	—	0.02	0.02	—	0.02	—	296	296	0.03	< 0.005	—	297
Total	0.21	0.10	1.78	0.86	0.01	0.14	—	0.14	0.14	—	0.14	—	2,243	2,243	0.20	< 0.005	—	2,249
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.06	0.03	0.53	0.23	< 0.005	0.04	—	0.04	0.04	—	0.04	—	678	678	0.06	< 0.005	—	680
Single Family Housing	0.12	0.06	1.00	0.42	0.01	0.08	—	0.08	0.08	—	0.08	—	1,264	1,264	0.11	< 0.005	—	1,268
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.73	4.73	< 0.005	< 0.005	—	4.75
Office Park	0.03	0.01	0.25	0.21	< 0.005	0.02	—	0.02	0.02	—	0.02	—	296	296	0.03	< 0.005	—	297
Total	0.21	0.10	1.78	0.86	0.01	0.14	—	0.14	0.14	—	0.14	—	2,243	2,243	0.20	< 0.005	—	2,249
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.01	0.01	0.10	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	112	112	0.01	< 0.005	—	113
Single Family Housing	0.02	0.01	0.18	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	209	209	0.02	< 0.005	—	210
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.78	0.78	< 0.005	< 0.005	—	0.79
Office Park	< 0.005	< 0.005	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	49.0	49.0	< 0.005	< 0.005	—	49.2
Total	0.04	0.02	0.33	0.16	< 0.005	0.03	—	0.03	0.03	—	0.03	—	371	371	0.03	< 0.005	—	372

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	8.60	8.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.73	0.73	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.89	1.78	0.17	18.7	< 0.005	0.01	—	0.01	0.01	—	0.01	—	52.8	52.8	< 0.005	< 0.005	—	52.9
Total	11.2	11.1	0.17	18.7	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	52.8	52.8	< 0.005	< 0.005	—	52.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	8.60	8.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.73	0.73	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	9.32	9.32	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	1.57	1.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.13	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.17	0.16	0.02	1.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.31	4.31	< 0.005	< 0.005	—	4.32
Total	1.87	1.86	0.02	1.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	4.31	4.31	< 0.005	< 0.005	—	4.32

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	8.60	8.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.73	0.73	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.89	1.78	0.17	18.7	< 0.005	0.01	—	0.01	0.01	—	0.01	—	52.8	52.8	< 0.005	< 0.005	—	52.9
Total	11.2	11.1	0.17	18.7	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	52.8	52.8	< 0.005	< 0.005	—	52.9

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	8.60	8.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.73	0.73	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	9.32	9.32	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	1.57	1.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.13	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.17	0.16	0.02	1.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.31	4.31	< 0.005	< 0.005	—	4.32
Total	1.87	1.86	0.02	1.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	4.31	4.31	< 0.005	< 0.005	—	4.32

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	7.99	22.3	30.2	0.82	0.02	—	56.6
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	20.7	334	355	2.15	0.05	—	424
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.43	1.19	1.61	0.04	< 0.005	—	3.02
Office Park	—	—	—	—	—	—	—	—	—	—	—	15.7	43.7	59.3	1.61	0.04	—	111
Total	—	—	—	—	—	—	—	—	—	—	—	44.8	401	446	4.62	0.11	—	595
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	7.99	22.3	30.2	0.82	0.02	—	56.6
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	20.7	334	355	2.15	0.05	—	424
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.43	1.19	1.61	0.04	< 0.005	—	3.02
Office Park	—	—	—	—	—	—	—	—	—	—	—	15.7	43.7	59.3	1.61	0.04	—	111
Total	—	—	—	—	—	—	—	—	—	—	—	44.8	401	446	4.62	0.11	—	595
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	1.32	3.69	5.01	0.14	< 0.005	—	9.38
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	3.43	55.3	58.7	0.36	0.01	—	70.2

Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.07	0.20	0.27	0.01	< 0.005	—	0.50
Office Park	—	—	—	—	—	—	—	—	—	—	—	2.59	7.23	9.82	0.27	0.01	—	18.4
Total	—	—	—	—	—	—	—	—	—	—	—	7.42	66.4	73.8	0.77	0.02	—	98.5

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	7.99	22.3	30.2	0.82	0.02	—	56.6
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	20.7	334	355	2.15	0.05	—	424
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.43	1.19	1.61	0.04	< 0.005	—	3.02
Office Park	—	—	—	—	—	—	—	—	—	—	—	15.7	43.7	59.3	1.61	0.04	—	111
Total	—	—	—	—	—	—	—	—	—	—	—	44.8	401	446	4.62	0.11	—	595
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	7.99	22.3	30.2	0.82	0.02	—	56.6
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	20.7	334	355	2.15	0.05	—	424
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.43	1.19	1.61	0.04	< 0.005	—	3.02

Office Park	—	—	—	—	—	—	—	—	—	—	—	15.7	43.7	59.3	1.61	0.04	—	111
Total	—	—	—	—	—	—	—	—	—	—	—	44.8	401	446	4.62	0.11	—	595
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	1.32	3.69	5.01	0.14	< 0.005	—	9.38
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	3.43	55.3	58.7	0.36	0.01	—	70.2
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.07	0.20	0.27	0.01	< 0.005	—	0.50
Office Park	—	—	—	—	—	—	—	—	—	—	—	2.59	7.23	9.82	0.27	0.01	—	18.4
Total	—	—	—	—	—	—	—	—	—	—	—	7.42	66.4	73.8	0.77	0.02	—	98.5

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	86.5	0.00	86.5	8.65	0.00	—	303
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.04	0.00	—	107
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	1.70	0.00	1.70	0.17	0.00	—	5.94

Office Park	—	—	—	—	—	—	—	—	—	—	—	23.1	0.00	23.1	2.30	0.00	—	80.7
Total	—	—	—	—	—	—	—	—	—	—	—	142	0.00	142	14.2	0.00	—	496
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	86.5	0.00	86.5	8.65	0.00	—	303
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.04	0.00	—	107
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	1.70	0.00	1.70	0.17	0.00	—	5.94
Office Park	—	—	—	—	—	—	—	—	—	—	—	23.1	0.00	23.1	2.30	0.00	—	80.7
Total	—	—	—	—	—	—	—	—	—	—	—	142	0.00	142	14.2	0.00	—	496
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	14.3	0.00	14.3	1.43	0.00	—	50.1
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	5.04	0.00	5.04	0.50	0.00	—	17.6
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.28	0.00	0.28	0.03	0.00	—	0.98
Office Park	—	—	—	—	—	—	—	—	—	—	—	3.82	0.00	3.82	0.38	0.00	—	13.4
Total	—	—	—	—	—	—	—	—	—	—	—	23.5	0.00	23.5	2.34	0.00	—	82.1

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	86.5	0.00	86.5	8.65	0.00	—	303
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.04	0.00	—	107
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	1.70	0.00	1.70	0.17	0.00	—	5.94
Office Park	—	—	—	—	—	—	—	—	—	—	—	23.1	0.00	23.1	2.30	0.00	—	80.7
Total	—	—	—	—	—	—	—	—	—	—	—	142	0.00	142	14.2	0.00	—	496
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	86.5	0.00	86.5	8.65	0.00	—	303
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	30.5	0.00	30.5	3.04	0.00	—	107
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	1.70	0.00	1.70	0.17	0.00	—	5.94
Office Park	—	—	—	—	—	—	—	—	—	—	—	23.1	0.00	23.1	2.30	0.00	—	80.7
Total	—	—	—	—	—	—	—	—	—	—	—	142	0.00	142	14.2	0.00	—	496
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	14.3	0.00	14.3	1.43	0.00	—	50.1
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	5.04	0.00	5.04	0.50	0.00	—	17.6

Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.28	0.00	0.28	0.03	0.00	—	0.98
Office Park	—	—	—	—	—	—	—	—	—	—	—	3.82	0.00	3.82	0.38	0.00	—	13.4
Total	—	—	—	—	—	—	—	—	—	—	—	23.5	0.00	23.5	2.34	0.00	—	82.1

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.48	1.48
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.05	1.05
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.11	0.11
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.66	2.66
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.48	1.48
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.05	1.05

Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.11	0.11
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.66	2.66
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.24	0.24
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.17	0.17
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.44	0.44

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.48	1.48
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.05	1.05
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02

Office Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.11	0.11
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.66	2.66
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.48	1.48
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.05	1.05
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.11	0.11
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.66	2.66
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.24	0.24
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.17	0.17
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.44	0.44

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	1/3/2028	12/18/2037	5.00	2,600	—
Grading	Grading	1/3/2028	12/18/2037	5.00	2,600	—
Building Construction	Building Construction	1/3/2028	12/18/2037	5.00	2,600	—
Paving	Paving	1/3/2028	12/18/2037	5.00	2,600	—
Architectural Coating	Architectural Coating	1/3/2028	12/18/2037	5.00	2,600	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37

Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Architectural Coating	Cranes	Diesel	Average	1.00	8.00	367	0.29

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48

Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Architectural Coating	Cranes	Diesel	Average	1.00	8.00	367	0.29

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	40.0	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	20.0	20.0	HHDT
Site Preparation	Onsite truck	1.00	1.00	HHDT
Grading	—	—	—	—
Grading	Worker	40.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	20.0	20.0	HHDT
Grading	Onsite truck	1.00	1.00	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	200	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	50.0	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT

Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	20.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	20.0	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	40.0	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	10.0	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	40.0	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	20.0	20.0	HHDT
Site Preparation	Onsite truck	1.00	1.00	HHDT
Grading	—	—	—	—
Grading	Worker	40.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	20.0	20.0	HHDT
Grading	Onsite truck	1.00	1.00	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	200	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	50.0	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT

Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	20.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	20.0	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	40.0	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	10.0	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	714,116	238,039	73,500	24,500	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	3,900	0.00	—
Grading	—	—	7,800	0.00	—
Paving	0.00	0.00	0.00	0.00	0.83

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Apartments Mid Rise	—	0%
Single Family Housing	0.17	0%
Apartments Mid Rise	—	0%
Strip Mall	0.00	0%
Office Park	0.00	0%
Single Family Housing	0.66	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2028	0.00	453	0.03	< 0.005
2029	0.00	453	0.03	< 0.005
2030	0.00	453	0.03	< 0.005
2031	0.00	453	0.03	< 0.005
2032	0.00	453	0.03	< 0.005
2033	0.00	453	0.03	< 0.005

2034	0.00	453	0.03	< 0.005
2035	0.00	453	0.03	< 0.005
2036	0.00	453	0.03	< 0.005
2037	0.00	453	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	520	520	520	189,800	4,018	4,018	4,018	1,466,740
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Apartments Mid Rise	650	650	650	237,250	5,023	5,023	5,023	1,833,425
Strip Mall	200	200	200	73,000	1,511	1,511	1,511	551,389
Office Park	320	320	320	116,800	2,417	2,417	2,417	882,223
Single Family Housing	230	230	230	83,950	1,777	1,777	1,777	648,750

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	520	520	520	189,800	4,018	4,018	4,018	1,466,740
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Apartments Mid Rise	650	650	650	237,250	5,023	5,023	5,023	1,833,425
Strip Mall	200	200	200	73,000	1,511	1,511	1,511	551,389
Office Park	320	320	320	116,800	2,417	2,417	2,417	882,223

Single Family Housing	230	230	230	83,950	1,777	1,777	1,777	648,750

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0

Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
714116.25	238,039	73,500	24,500	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	308,648	453	0.0330	0.0040	932,984
Single Family Housing	99,494	453	0.0330	0.0040	798,905
Apartments Mid Rise	397,303	453	0.0330	0.0040	1,200,968
Strip Mall	29,870	453	0.0330	0.0040	14,772

Office Park	732,722	453	0.0330	0.0040	924,226
Single Family Housing	397,976	453	0.0330	0.0040	3,195,620

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	310,132	453	0.0330	0.0040	923,562
Single Family Housing	103,282	453	0.0330	0.0040	749,709
Apartments Mid Rise	398,786	453	0.0330	0.0040	1,191,547
Strip Mall	29,870	453	0.0330	0.0040	14,772
Office Park	732,722	453	0.0330	0.0040	924,226
Single Family Housing	397,976	453	0.0330	0.0040	3,195,620

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	3,468,226	0.00
Single Family Housing	8,596,774	43,293,712
Apartments Mid Rise	701,024	0.00
Strip Mall	222,218	0.00
Office Park	8,175,752	0.00
Single Family Housing	2,213,762	11,148,587

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	3,468,226	0.00
Single Family Housing	8,596,774	43,293,712

Apartments Mid Rise	701,024	0.00
Strip Mall	222,218	0.00
Office Park	8,175,752	0.00
Single Family Housing	2,213,762	11,148,587

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	70.2	—
Single Family Housing	11.2	—
Apartments Mid Rise	90.4	—
Strip Mall	3.15	—
Office Park	42.8	—
Single Family Housing	45.3	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	70.2	—
Single Family Housing	11.2	—
Apartments Mid Rise	90.4	—
Strip Mall	3.15	—
Office Park	42.8	—
Single Family Housing	45.3	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Office Park	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Office Park	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Office Park	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Office Park	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0

Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit

Temperature and Extreme Heat	5.68	annual days of extreme heat
Extreme Precipitation	5.50	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	45.0
AQ-PM	66.1
AQ-DPM	96.2
Drinking Water	52.7
Lead Risk Housing	24.4
Pesticides	0.00
Toxic Releases	79.2

Traffic	68.7
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	25.1
Haz Waste Facilities/Generators	44.7
Impaired Water Bodies	66.7
Solid Waste	42.3
Sensitive Population	—
Asthma	35.8
Cardio-vascular	47.2
Low Birth Weights	7.17
Socioeconomic Factor Indicators	—
Education	20.9
Housing	50.7
Linguistic	30.0
Poverty	42.6
Unemployment	45.8

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	66.05928397
Employed	97.78005903
Median HI	50.49403311
Education	—
Bachelor's or higher	85.98742461
High school enrollment	100

Preschool enrollment	78.71166431
Transportation	—
Auto Access	15.29577826
Active commuting	83.42101886
Social	—
2-parent households	0.936738098
Voting	40.18991403
Neighborhood	—
Alcohol availability	4.516874118
Park access	81.35506224
Retail density	58.14192224
Supermarket access	94.25125112
Tree canopy	21.14718337
Housing	—
Homeownership	0.590273322
Housing habitability	26.43397921
Low-inc homeowner severe housing cost burden	99.12742205
Low-inc renter severe housing cost burden	68.71551392
Uncrowded housing	10.40677531
Health Outcomes	—
Insured adults	54.27948159
Arthritis	98.1
Asthma ER Admissions	59.4
High Blood Pressure	96.7
Cancer (excluding skin)	89.7
Asthma	83.3
Coronary Heart Disease	97.4
Chronic Obstructive Pulmonary Disease	97.2

Diagnosed Diabetes	95.7
Life Expectancy at Birth	81.8
Cognitively Disabled	93.6
Physically Disabled	98.1
Heart Attack ER Admissions	34.3
Mental Health Not Good	76.1
Chronic Kidney Disease	95.6
Obesity	77.3
Pedestrian Injuries	94.6
Physical Health Not Good	92.3
Stroke	96.9
Health Risk Behaviors	—
Binge Drinking	6.6
Current Smoker	70.9
No Leisure Time for Physical Activity	88.3
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	19.0
Elderly	98.6
English Speaking	73.8
Foreign-born	76.3
Outdoor Workers	35.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	0.9
Traffic Density	60.1
Traffic Access	87.4
Other Indices	—

Hardship	35.5
Other Decision Support	—
2016 Voting	48.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	39.0
Healthy Places Index Score for Project Location (b)	60.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Characteristics: Project Details	Updated characteristics screen to match project specific characteristics
Characteristics: Utility Information	Using statewide average electricity defaults to better estimate emissions for project area
Construction: Construction Phases	removed demolition phase and updated construction schedule to match project needs
Construction: Off-Road Equipment	updated construction equipment list to match project needs
Construction: Trips and VMT	updated construction trips to match needs of the project

Operations: Hearths	removed hearths
Operations: Water and Waste Water	updated electricity intensity factor for water for Maui
Operations: Vehicle Data	Adjusted traffic data based on TIAR

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Makena Mauka - Phase 2
Construction Start Date	1/4/2038
Operational Year	2048
Lead Agency	—
Land Use Scale	Plan/community
Analysis Level for Defaults	Statewide
Windspeed (m/s)	15.0
Precipitation (days)	113
Location	34.022579521235755, -118.40535118073069
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4454
EDFZ	16
Electric Utility	Statewide Average
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Single Family Housing	60.0	Dwelling Unit	19.5	117,000	702,771	—	178	single family homes

Apartments Mid Rise	121	Dwelling Unit	3.18	116,160	0.00	—	358	multifamily homes

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Energy	E-12-A	Install Alternative Type of Water Heater in Place of Gas Storage Tank Heater in Residences
Energy	E-12-B	Install Electric Space Heater in Place of Natural Gas Heaters in Residences
Energy	E-13	Install Electric Ranges in Place of Gas Ranges

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	10.0	8.90	46.2	71.8	0.17	1.41	15.5	16.9	1.30	6.31	7.61	—	20,827	20,827	0.72	0.63	4.15	21,037
Mit.	10.0	8.90	46.2	71.8	0.17	1.41	15.5	16.9	1.30	6.31	7.61	—	20,827	20,827	0.72	0.63	4.15	21,037
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	10.0	8.89	46.4	70.5	0.17	1.41	15.5	16.9	1.30	6.31	7.61	—	20,679	20,679	0.72	0.63	0.11	20,885
Mit.	10.0	8.89	46.4	70.5	0.17	1.41	15.5	16.9	1.30	6.31	7.61	—	20,679	20,679	0.72	0.63	0.11	20,885

% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.11	6.30	32.9	50.1	0.13	1.00	10.8	11.7	0.92	4.46	5.34	—	14,746	14,746	0.51	0.45	1.27	14,894
Mit.	7.11	6.30	32.9	50.1	0.13	1.00	10.8	11.7	0.92	4.46	5.34	—	14,746	14,746	0.51	0.45	1.27	14,894
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.30	1.15	6.00	9.15	0.02	0.18	1.97	2.14	0.17	0.81	0.97	—	2,441	2,441	0.08	0.07	0.21	2,466
Mit.	1.30	1.15	6.00	9.15	0.02	0.18	1.97	2.14	0.17	0.81	0.97	—	2,441	2,441	0.08	0.07	0.21	2,466
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	40.0	40.0	100	40.0	—	—	15.0	—	—	10.0	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—
Mit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2038	10.0	8.90	46.2	71.8	0.17	1.41	15.5	16.9	1.30	6.31	7.61	—	20,827	20,827	0.72	0.63	4.15	21,037
2039	9.91	8.78	44.9	70.7	0.17	1.35	15.5	16.9	1.25	6.31	7.56	—	20,761	20,761	0.71	0.63	3.51	20,971
2040	9.83	8.63	44.3	70.2	0.17	1.32	15.5	16.8	1.22	6.31	7.53	—	20,703	20,703	0.71	0.62	2.97	20,909
2041	9.60	8.44	42.4	68.9	0.17	1.20	15.5	16.7	1.11	6.31	7.42	—	20,653	20,653	0.71	0.62	2.51	20,858

2042	9.52	8.37	41.5	67.9	0.17	1.16	15.5	16.7	1.07	6.31	7.38	—	20,609	20,609	0.71	0.62	2.13	20,814
2043	9.44	8.33	41.4	67.5	0.17	1.13	15.5	16.7	1.04	6.31	7.36	—	20,571	20,571	0.69	0.60	1.82	20,768
2044	9.26	8.17	39.6	66.2	0.17	1.03	15.5	16.6	0.95	6.31	7.26	—	20,539	20,539	0.69	0.59	1.55	20,733
2045	9.21	8.12	39.2	65.9	0.17	1.01	15.5	16.5	0.93	6.31	7.24	—	20,511	20,511	0.69	0.59	1.33	20,705
2046	9.04	7.98	37.4	65.1	0.17	0.92	15.5	16.4	0.85	6.31	7.16	—	20,488	20,488	0.69	0.59	1.13	20,682
2047	8.90	7.93	36.6	64.9	0.17	0.89	15.5	16.4	0.82	6.31	7.13	—	20,469	20,469	0.69	0.59	0.97	20,662
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2038	10.0	8.89	46.4	70.5	0.17	1.41	15.5	16.9	1.30	6.31	7.61	—	20,679	20,679	0.72	0.63	0.11	20,885
2039	9.90	8.77	45.2	69.5	0.17	1.35	15.5	16.9	1.25	6.31	7.56	—	20,614	20,614	0.71	0.63	0.09	20,821
2040	9.82	8.63	44.6	69.0	0.17	1.32	15.5	16.8	1.22	6.31	7.53	—	20,557	20,557	0.71	0.62	0.08	20,760
2041	9.58	8.43	42.6	67.7	0.17	1.20	15.5	16.7	1.11	6.31	7.42	—	20,507	20,507	0.71	0.62	0.07	20,710
2042	9.51	8.36	41.7	66.8	0.17	1.16	15.5	16.7	1.07	6.31	7.38	—	20,464	20,464	0.71	0.62	0.06	20,667
2043	9.44	8.31	41.6	66.4	0.17	1.13	15.5	16.7	1.04	6.31	7.36	—	20,427	20,427	0.70	0.60	0.05	20,624
2044	9.24	8.15	39.8	65.1	0.17	1.03	15.5	16.6	0.95	6.31	7.26	—	20,396	20,396	0.69	0.59	0.04	20,590
2045	9.12	8.11	39.4	64.8	0.17	1.01	15.5	16.5	0.93	6.31	7.24	—	20,368	20,368	0.69	0.59	0.03	20,562
2046	8.95	7.97	37.5	64.0	0.17	0.92	15.5	16.4	0.85	6.31	7.16	—	20,346	20,346	0.69	0.59	0.03	20,539
2047	8.89	7.92	36.8	63.8	0.17	0.89	15.5	16.4	0.82	6.31	7.13	—	20,326	20,326	0.69	0.59	0.03	20,520
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2038	7.11	6.30	32.9	50.1	0.12	1.00	10.7	11.7	0.92	4.41	5.33	—	14,671	14,671	0.51	0.45	1.27	14,818
2039	7.07	6.27	32.2	49.8	0.12	0.97	10.8	11.7	0.89	4.45	5.34	—	14,746	14,746	0.51	0.45	1.08	14,894
2040	7.03	6.18	31.9	49.6	0.13	0.95	10.8	11.7	0.87	4.46	5.33	—	14,745	14,745	0.51	0.44	0.92	14,892
2041	6.85	6.02	30.3	48.4	0.12	0.86	10.8	11.6	0.79	4.45	5.24	—	14,670	14,670	0.51	0.44	0.78	14,815
2042	6.79	5.97	29.7	47.8	0.12	0.83	10.8	11.6	0.76	4.45	5.21	—	14,639	14,639	0.51	0.44	0.66	14,784
2043	6.74	5.94	29.7	47.5	0.12	0.81	10.8	11.6	0.75	4.45	5.19	—	14,612	14,612	0.50	0.43	0.56	14,753
2044	6.62	5.84	28.5	46.8	0.13	0.74	10.8	11.5	0.68	4.46	5.14	—	14,629	14,629	0.49	0.42	0.48	14,769
2045	6.52	5.79	28.1	46.4	0.12	0.72	10.8	11.5	0.66	4.45	5.11	—	14,570	14,570	0.49	0.42	0.41	14,708

2046	6.40	5.69	26.7	45.9	0.12	0.66	10.8	11.4	0.61	4.45	5.06	—	14,554	14,554	0.49	0.42	0.35	14,692
2047	6.16	5.49	25.4	44.3	0.12	0.62	10.4	11.0	0.57	4.32	4.88	—	14,101	14,101	0.48	0.41	0.29	14,236
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2038	1.30	1.15	6.00	9.15	0.02	0.18	1.95	2.13	0.17	0.81	0.97	—	2,429	2,429	0.08	0.07	0.21	2,453
2039	1.29	1.14	5.88	9.09	0.02	0.18	1.96	2.14	0.16	0.81	0.97	—	2,441	2,441	0.08	0.07	0.18	2,466
2040	1.28	1.13	5.83	9.04	0.02	0.17	1.97	2.14	0.16	0.81	0.97	—	2,441	2,441	0.08	0.07	0.15	2,465
2041	1.25	1.10	5.54	8.84	0.02	0.16	1.96	2.12	0.14	0.81	0.96	—	2,429	2,429	0.08	0.07	0.13	2,453
2042	1.24	1.09	5.43	8.72	0.02	0.15	1.96	2.11	0.14	0.81	0.95	—	2,424	2,424	0.08	0.07	0.11	2,448
2043	1.23	1.08	5.41	8.67	0.02	0.15	1.96	2.11	0.14	0.81	0.95	—	2,419	2,419	0.08	0.07	0.09	2,443
2044	1.21	1.07	5.19	8.53	0.02	0.13	1.97	2.10	0.12	0.81	0.94	—	2,422	2,422	0.08	0.07	0.08	2,445
2045	1.19	1.06	5.13	8.47	0.02	0.13	1.96	2.09	0.12	0.81	0.93	—	2,412	2,412	0.08	0.07	0.07	2,435
2046	1.17	1.04	4.88	8.37	0.02	0.12	1.96	2.08	0.11	0.81	0.92	—	2,410	2,410	0.08	0.07	0.06	2,432
2047	1.12	1.00	4.64	8.09	0.02	0.11	1.90	2.02	0.10	0.79	0.89	—	2,335	2,335	0.08	0.07	0.05	2,357

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2038	10.0	8.90	46.2	71.8	0.17	1.41	15.5	16.9	1.30	6.31	7.61	—	20,827	20,827	0.72	0.63	4.15	21,037
2039	9.91	8.78	44.9	70.7	0.17	1.35	15.5	16.9	1.25	6.31	7.56	—	20,761	20,761	0.71	0.63	3.51	20,971
2040	9.83	8.63	44.3	70.2	0.17	1.32	15.5	16.8	1.22	6.31	7.53	—	20,703	20,703	0.71	0.62	2.97	20,909
2041	9.60	8.44	42.4	68.9	0.17	1.20	15.5	16.7	1.11	6.31	7.42	—	20,653	20,653	0.71	0.62	2.51	20,858
2042	9.52	8.37	41.5	67.9	0.17	1.16	15.5	16.7	1.07	6.31	7.38	—	20,609	20,609	0.71	0.62	2.13	20,814
2043	9.44	8.33	41.4	67.5	0.17	1.13	15.5	16.7	1.04	6.31	7.36	—	20,571	20,571	0.69	0.60	1.82	20,768
2044	9.26	8.17	39.6	66.2	0.17	1.03	15.5	16.6	0.95	6.31	7.26	—	20,539	20,539	0.69	0.59	1.55	20,733
2045	9.21	8.12	39.2	65.9	0.17	1.01	15.5	16.5	0.93	6.31	7.24	—	20,511	20,511	0.69	0.59	1.33	20,705
2046	9.04	7.98	37.4	65.1	0.17	0.92	15.5	16.4	0.85	6.31	7.16	—	20,488	20,488	0.69	0.59	1.13	20,682

2047	8.90	7.93	36.6	64.9	0.17	0.89	15.5	16.4	0.82	6.31	7.13	—	20,469	20,469	0.69	0.59	0.97	20,662
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2038	10.0	8.89	46.4	70.5	0.17	1.41	15.5	16.9	1.30	6.31	7.61	—	20,679	20,679	0.72	0.63	0.11	20,885
2039	9.90	8.77	45.2	69.5	0.17	1.35	15.5	16.9	1.25	6.31	7.56	—	20,614	20,614	0.71	0.63	0.09	20,821
2040	9.82	8.63	44.6	69.0	0.17	1.32	15.5	16.8	1.22	6.31	7.53	—	20,557	20,557	0.71	0.62	0.08	20,760
2041	9.58	8.43	42.6	67.7	0.17	1.20	15.5	16.7	1.11	6.31	7.42	—	20,507	20,507	0.71	0.62	0.07	20,710
2042	9.51	8.36	41.7	66.8	0.17	1.16	15.5	16.7	1.07	6.31	7.38	—	20,464	20,464	0.71	0.62	0.06	20,667
2043	9.44	8.31	41.6	66.4	0.17	1.13	15.5	16.7	1.04	6.31	7.36	—	20,427	20,427	0.70	0.60	0.05	20,624
2044	9.24	8.15	39.8	65.1	0.17	1.03	15.5	16.6	0.95	6.31	7.26	—	20,396	20,396	0.69	0.59	0.04	20,590
2045	9.12	8.11	39.4	64.8	0.17	1.01	15.5	16.5	0.93	6.31	7.24	—	20,368	20,368	0.69	0.59	0.03	20,562
2046	8.95	7.97	37.5	64.0	0.17	0.92	15.5	16.4	0.85	6.31	7.16	—	20,346	20,346	0.69	0.59	0.03	20,539
2047	8.89	7.92	36.8	63.8	0.17	0.89	15.5	16.4	0.82	6.31	7.13	—	20,326	20,326	0.69	0.59	0.03	20,520
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2038	7.11	6.30	32.9	50.1	0.12	1.00	10.7	11.7	0.92	4.41	5.33	—	14,671	14,671	0.51	0.45	1.27	14,818
2039	7.07	6.27	32.2	49.8	0.12	0.97	10.8	11.7	0.89	4.45	5.34	—	14,746	14,746	0.51	0.45	1.08	14,894
2040	7.03	6.18	31.9	49.6	0.13	0.95	10.8	11.7	0.87	4.46	5.33	—	14,745	14,745	0.51	0.44	0.92	14,892
2041	6.85	6.02	30.3	48.4	0.12	0.86	10.8	11.6	0.79	4.45	5.24	—	14,670	14,670	0.51	0.44	0.78	14,815
2042	6.79	5.97	29.7	47.8	0.12	0.83	10.8	11.6	0.76	4.45	5.21	—	14,639	14,639	0.51	0.44	0.66	14,784
2043	6.74	5.94	29.7	47.5	0.12	0.81	10.8	11.6	0.75	4.45	5.19	—	14,612	14,612	0.50	0.43	0.56	14,753
2044	6.62	5.84	28.5	46.8	0.13	0.74	10.8	11.5	0.68	4.46	5.14	—	14,629	14,629	0.49	0.42	0.48	14,769
2045	6.52	5.79	28.1	46.4	0.12	0.72	10.8	11.5	0.66	4.45	5.11	—	14,570	14,570	0.49	0.42	0.41	14,708
2046	6.40	5.69	26.7	45.9	0.12	0.66	10.8	11.4	0.61	4.45	5.06	—	14,554	14,554	0.49	0.42	0.35	14,692
2047	6.16	5.49	25.4	44.3	0.12	0.62	10.4	11.0	0.57	4.32	4.88	—	14,101	14,101	0.48	0.41	0.29	14,236
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2038	1.30	1.15	6.00	9.15	0.02	0.18	1.95	2.13	0.17	0.81	0.97	—	2,429	2,429	0.08	0.07	0.21	2,453
2039	1.29	1.14	5.88	9.09	0.02	0.18	1.96	2.14	0.16	0.81	0.97	—	2,441	2,441	0.08	0.07	0.18	2,466

2040	1.28	1.13	5.83	9.04	0.02	0.17	1.97	2.14	0.16	0.81	0.97	—	2,441	2,441	0.08	0.07	0.15	2,465
2041	1.25	1.10	5.54	8.84	0.02	0.16	1.96	2.12	0.14	0.81	0.96	—	2,429	2,429	0.08	0.07	0.13	2,453
2042	1.24	1.09	5.43	8.72	0.02	0.15	1.96	2.11	0.14	0.81	0.95	—	2,424	2,424	0.08	0.07	0.11	2,448
2043	1.23	1.08	5.41	8.67	0.02	0.15	1.96	2.11	0.14	0.81	0.95	—	2,419	2,419	0.08	0.07	0.09	2,443
2044	1.21	1.07	5.19	8.53	0.02	0.13	1.97	2.10	0.12	0.81	0.94	—	2,422	2,422	0.08	0.07	0.08	2,445
2045	1.19	1.06	5.13	8.47	0.02	0.13	1.96	2.09	0.12	0.81	0.93	—	2,412	2,412	0.08	0.07	0.07	2,435
2046	1.17	1.04	4.88	8.37	0.02	0.12	1.96	2.08	0.11	0.81	0.92	—	2,410	2,410	0.08	0.07	0.06	2,432
2047	1.12	1.00	4.64	8.09	0.02	0.11	1.90	2.02	0.10	0.79	0.89	—	2,335	2,335	0.08	0.07	0.05	2,357

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	8.38	8.13	2.47	25.9	0.05	0.11	4.81	4.93	0.11	1.22	1.33	90.9	7,158	7,249	9.49	0.23	2.43	7,558
Mit.	8.38	8.13	2.46	25.9	0.05	0.11	4.81	4.92	0.11	1.22	1.33	90.9	7,146	7,237	9.49	0.23	2.43	7,546
% Reduced	< 0.5%	—	1%	< 0.5%	—	1%	—	< 0.5%	1%	—	< 0.5%	—	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.39	7.19	2.50	14.0	0.05	0.11	4.81	4.92	0.11	1.22	1.33	90.9	6,871	6,962	9.50	0.24	1.69	7,273
Mit.	7.39	7.19	2.49	14.0	0.05	0.11	4.81	4.92	0.11	1.22	1.33	90.9	6,859	6,950	9.49	0.24	1.69	7,261
% Reduced	< 0.5%	—	1%	< 0.5%	—	1%	—	< 0.5%	1%	—	< 0.5%	—	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.84	7.62	2.51	19.2	0.05	0.11	4.46	4.57	0.11	1.13	1.24	90.9	6,939	7,030	9.49	0.24	2.00	7,341
Mit.	7.84	7.62	2.49	19.2	0.05	0.11	4.46	4.57	0.11	1.13	1.24	90.9	6,927	7,018	9.49	0.24	2.00	7,329

% Reduced	< 0.5%	—	1%	< 0.5%	—	1%	—	< 0.5%	1%	—	< 0.5%	—	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.43	1.39	0.46	3.51	0.01	0.02	0.81	0.83	0.02	0.21	0.23	15.1	1,149	1,164	1.57	0.04	0.33	1,215
Mit.	1.43	1.39	0.45	3.51	0.01	0.02	0.81	0.83	0.02	0.21	0.23	15.1	1,147	1,162	1.57	0.04	0.33	1,213
% Reduced	< 0.5%	< 0.5%	1%	< 0.5%	< 0.5%	1%	—	< 0.5%	1%	—	< 0.5%	—	< 0.5%	< 0.5%	< 0.5%	> -0.5%	—	< 0.5%
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	40.0	40.0	100	40.0	—	—	15.0	—	—	10.0	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—
Mit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.92	1.78	1.27	15.1	0.04	0.02	4.81	4.83	0.02	1.22	1.24	—	4,453	4,453	0.13	0.17	0.76	4,509
Area	6.33	6.28	0.09	10.3	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.5	27.5	< 0.005	< 0.005	—	27.6
Energy	0.13	0.06	1.11	0.47	0.01	0.09	—	0.09	0.09	—	0.09	—	2,397	2,397	0.20	0.01	—	2,405
Water	—	—	—	—	—	—	—	—	—	—	—	17.8	281	299	1.85	0.05	—	358
Waste	—	—	—	—	—	—	—	—	—	—	—	73.1	0.00	73.1	7.31	0.00	—	256
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.67	1.67
Total	8.38	8.13	2.47	25.9	0.05	0.11	4.81	4.93	0.11	1.22	1.33	90.9	7,158	7,249	9.49	0.23	2.43	7,558
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	1.87	1.73	1.39	13.5	0.04	0.02	4.81	4.83	0.02	1.22	1.24	—	4,194	4,194	0.14	0.19	0.02	4,253
Area	5.39	5.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.13	0.06	1.11	0.47	0.01	0.09	—	0.09	0.09	—	0.09	—	2,397	2,397	0.20	0.01	—	2,405
Water	—	—	—	—	—	—	—	—	—	—	—	17.8	281	299	1.85	0.05	—	358
Waste	—	—	—	—	—	—	—	—	—	—	—	73.1	0.00	73.1	7.31	0.00	—	256
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.67	1.67
Total	7.39	7.19	2.50	14.0	0.05	0.11	4.81	4.92	0.11	1.22	1.33	90.9	6,871	6,962	9.50	0.24	1.69	7,273
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.86	1.72	1.35	13.7	0.04	0.02	4.46	4.48	0.02	1.13	1.15	—	4,248	4,248	0.14	0.18	0.33	4,307
Area	5.85	5.83	0.05	5.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.5	13.5	< 0.005	< 0.005	—	13.6
Energy	0.13	0.06	1.11	0.47	0.01	0.09	—	0.09	0.09	—	0.09	—	2,397	2,397	0.20	0.01	—	2,405
Water	—	—	—	—	—	—	—	—	—	—	—	17.8	281	299	1.85	0.05	—	358
Waste	—	—	—	—	—	—	—	—	—	—	—	73.1	0.00	73.1	7.31	0.00	—	256
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.67	1.67
Total	7.84	7.62	2.51	19.2	0.05	0.11	4.46	4.57	0.11	1.13	1.24	90.9	6,939	7,030	9.49	0.24	2.00	7,341
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.34	0.31	0.25	2.49	0.01	< 0.005	0.81	0.82	< 0.005	0.21	0.21	—	703	703	0.02	0.03	0.05	713
Area	1.07	1.06	0.01	0.93	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.24	2.24	< 0.005	< 0.005	—	2.25
Energy	0.02	0.01	0.20	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	397	397	0.03	< 0.005	—	398
Water	—	—	—	—	—	—	—	—	—	—	—	2.95	46.5	49.4	0.31	0.01	—	59.3
Waste	—	—	—	—	—	—	—	—	—	—	—	12.1	0.00	12.1	1.21	0.00	—	42.3
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.28	0.28
Total	1.43	1.39	0.46	3.51	0.01	0.02	0.81	0.83	0.02	0.21	0.23	15.1	1,149	1,164	1.57	0.04	0.33	1,215

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.92	1.78	1.27	15.1	0.04	0.02	4.81	4.83	0.02	1.22	1.24	—	4,453	4,453	0.13	0.17	0.76	4,509
Area	6.33	6.28	0.09	10.3	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.5	27.5	< 0.005	< 0.005	—	27.6
Energy	0.13	0.06	1.10	0.47	0.01	0.09	—	0.09	0.09	—	0.09	—	2,384	2,384	0.20	0.01	—	2,393
Water	—	—	—	—	—	—	—	—	—	—	—	17.8	281	299	1.85	0.05	—	358
Waste	—	—	—	—	—	—	—	—	—	—	—	73.1	0.00	73.1	7.31	0.00	—	256
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.67	1.67
Total	8.38	8.13	2.46	25.9	0.05	0.11	4.81	4.92	0.11	1.22	1.33	90.9	7,146	7,237	9.49	0.23	2.43	7,546
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.87	1.73	1.39	13.5	0.04	0.02	4.81	4.83	0.02	1.22	1.24	—	4,194	4,194	0.14	0.19	0.02	4,253
Area	5.39	5.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.13	0.06	1.10	0.47	0.01	0.09	—	0.09	0.09	—	0.09	—	2,384	2,384	0.20	0.01	—	2,393
Water	—	—	—	—	—	—	—	—	—	—	—	17.8	281	299	1.85	0.05	—	358
Waste	—	—	—	—	—	—	—	—	—	—	—	73.1	0.00	73.1	7.31	0.00	—	256
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.67	1.67
Total	7.39	7.19	2.49	14.0	0.05	0.11	4.81	4.92	0.11	1.22	1.33	90.9	6,859	6,950	9.49	0.24	1.69	7,261
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.86	1.72	1.35	13.7	0.04	0.02	4.46	4.48	0.02	1.13	1.15	—	4,248	4,248	0.14	0.18	0.33	4,307
Area	5.85	5.83	0.05	5.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.5	13.5	< 0.005	< 0.005	—	13.6
Energy	0.13	0.06	1.10	0.47	0.01	0.09	—	0.09	0.09	—	0.09	—	2,384	2,384	0.20	0.01	—	2,393
Water	—	—	—	—	—	—	—	—	—	—	—	17.8	281	299	1.85	0.05	—	358
Waste	—	—	—	—	—	—	—	—	—	—	—	73.1	0.00	73.1	7.31	0.00	—	256
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.67	1.67
Total	7.84	7.62	2.49	19.2	0.05	0.11	4.46	4.57	0.11	1.13	1.24	90.9	6,927	7,018	9.49	0.24	2.00	7,329
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	0.34	0.31	0.25	2.49	0.01	< 0.005	0.81	0.82	< 0.005	0.21	0.21	—	703	703	0.02	0.03	0.05	713
Area	1.07	1.06	0.01	0.93	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.24	2.24	< 0.005	< 0.005	—	2.25
Energy	0.02	0.01	0.20	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	395	395	0.03	< 0.005	—	396
Water	—	—	—	—	—	—	—	—	—	—	—	2.95	46.5	49.4	0.31	0.01	—	59.3
Waste	—	—	—	—	—	—	—	—	—	—	—	12.1	0.00	12.1	1.21	0.00	—	42.3
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.28	0.28
Total	1.43	1.39	0.45	3.51	0.01	0.02	0.81	0.83	0.02	0.21	0.23	15.1	1,147	1,162	1.57	0.04	0.33	1,213

3. Construction Emissions Details

3.1. Site Preparation (2038) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.56	2.15	15.7	18.4	0.05	0.60	—	0.60	0.56	—	0.56	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.08	4.08	< 0.005	< 0.005	< 0.005	4.29
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	2.56	2.15	15.7	18.4	0.05	0.60	—	0.60	0.56	—	0.56	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.13	4.13	< 0.005	< 0.005	< 0.005	4.33
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.81	1.52	11.1	13.0	0.03	0.43	—	0.43	0.39	—	0.39	—	3,546	3,546	0.14	0.03	—	3,558
Dust From Material Movement	—	—	—	—	—	—	5.43	5.43	—	2.79	2.79	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.91	2.91	< 0.005	< 0.005	< 0.005	3.05
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	2.03	2.38	0.01	0.08	—	0.08	0.07	—	0.07	—	587	587	0.02	< 0.005	—	589
Dust From Material Movement	—	—	—	—	—	—	0.99	0.99	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.04	0.04	0.03	0.68	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	232	232	< 0.005	< 0.005	0.21	233
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.22	0.39	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,045	1,045	0.02	0.16	0.79	1,095
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.54	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	216	216	< 0.005	< 0.005	0.01	216
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.29	0.40	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,046	1,046	0.02	0.16	0.02	1,096
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.40	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.06	156
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.91	0.28	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	741	741	0.02	0.12	0.24	776
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.17	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	123	123	< 0.005	0.02	0.04	128

3.2. Site Preparation (2038) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.56	2.15	15.7	18.4	0.05	0.60	—	0.60	0.56	—	0.56	—	5,006	5,006	0.20	0.04	—	5,023

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.08	4.08	< 0.005	< 0.005	< 0.005	4.29
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.56	2.15	15.7	18.4	0.05	0.60	—	0.60	0.56	—	0.56	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.13	4.13	< 0.005	< 0.005	< 0.005	4.33
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.81	1.52	11.1	13.0	0.03	0.43	—	0.43	0.39	—	0.39	—	3,546	3,546	0.14	0.03	—	3,558
Dust From Material Movement	—	—	—	—	—	—	5.43	5.43	—	2.79	2.79	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.91	2.91	< 0.005	< 0.005	< 0.005	3.05
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	2.03	2.38	0.01	0.08	—	0.08	0.07	—	0.07	—	587	587	0.02	< 0.005	—	589

Dust From Material Movement	—	—	—	—	—	—	0.99	0.99	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.68	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	232	232	< 0.005	< 0.005	0.21	233
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.22	0.39	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,045	1,045	0.02	0.16	0.79	1,095
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.54	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	216	216	< 0.005	< 0.005	0.01	216
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.29	0.40	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,046	1,046	0.02	0.16	0.02	1,096
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.40	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.06	156
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.91	0.28	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	741	741	0.02	0.12	0.24	776
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.17	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	123	123	< 0.005	0.02	0.04	128

3.3. Site Preparation (2039) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.51	2.11	15.2	18.1	0.05	0.58	—	0.58	0.53	—	0.53	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.05	4.05	< 0.005	< 0.005	< 0.005	4.25
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.51	2.11	15.2	18.1	0.05	0.58	—	0.58	0.53	—	0.53	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.09	4.09	< 0.005	< 0.005	< 0.005	4.30
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.79	1.50	10.9	12.9	0.03	0.41	—	0.41	0.38	—	0.38	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.90	2.90	< 0.005	< 0.005	< 0.005	3.05
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.27	1.98	2.36	0.01	0.08	—	0.08	0.07	—	0.07	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.66	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	231	231	< 0.005	< 0.005	0.18	231
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.20	0.38	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,033	1,033	0.02	0.16	0.67	1,083
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.52	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	214	214	< 0.005	< 0.005	< 0.005	214
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.27	0.39	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,034	1,034	0.02	0.16	0.02	1,083
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.39	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	156
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.90	0.27	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	738	738	0.02	0.12	0.21	773
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	122	122	< 0.005	0.02	0.03	128

3.4. Site Preparation (2039) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.51	2.11	15.2	18.1	0.05	0.58	—	0.58	0.53	—	0.53	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.05	4.05	< 0.005	< 0.005	< 0.005	4.25
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.51	2.11	15.2	18.1	0.05	0.58	—	0.58	0.53	—	0.53	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.09	4.09	< 0.005	< 0.005	< 0.005	4.30
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	1.79	1.50	10.9	12.9	0.03	0.41	—	0.41	0.38	—	0.38	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.90	2.90	< 0.005	< 0.005	< 0.005	3.05
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.27	1.98	2.36	0.01	0.08	—	0.08	0.07	—	0.07	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.66	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	231	231	< 0.005	< 0.005	0.18	231
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.20	0.38	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,033	1,033	0.02	0.16	0.67	1,083
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.52	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	214	214	< 0.005	< 0.005	< 0.005	214
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.27	0.39	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,034	1,034	0.02	0.16	0.02	1,083
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.39	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	156

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.90	0.27	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	738	738	0.02	0.12	0.21	773
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	122	122	< 0.005	0.02	0.03	128

3.5. Site Preparation (2040) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.48	2.09	15.1	17.9	0.05	0.57	—	0.57	0.52	—	0.52	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.02	4.02	< 0.005	< 0.005	< 0.005	4.22
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.48	2.09	15.1	17.9	0.05	0.57	—	0.57	0.52	—	0.52	—	5,006	5,006	0.20	0.04	—	5,023

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.06	4.06	< 0.005	< 0.005	< 0.005	4.27
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.78	1.49	10.8	12.8	0.03	0.41	—	0.41	0.38	—	0.38	—	3,585	3,585	0.15	0.03	—	3,597
Dust From Material Movement	—	—	—	—	—	—	5.49	5.49	—	2.82	2.82	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.89	2.89	< 0.005	< 0.005	< 0.005	3.03
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	1.98	2.34	0.01	0.07	—	0.07	0.07	—	0.07	—	594	594	0.02	< 0.005	—	596
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.52	0.52	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	229	229	< 0.005	< 0.005	0.15	230
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.19	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,022	1,022	0.02	0.16	0.58	1,072

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	213	213	< 0.005	< 0.005	< 0.005	213
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.26	0.38	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,023	1,023	0.02	0.16	0.02	1,072
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.38	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	155
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.90	0.27	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	732	732	0.02	0.12	0.18	768
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.6	25.6	< 0.005	< 0.005	0.01	25.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	121	121	< 0.005	0.02	0.03	127

3.6. Site Preparation (2040) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.48	2.09	15.1	17.9	0.05	0.57	—	0.57	0.52	—	0.52	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.02	4.02	< 0.005	< 0.005	< 0.005	4.22
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.48	2.09	15.1	17.9	0.05	0.57	—	0.57	0.52	—	0.52	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.06	4.06	< 0.005	< 0.005	< 0.005	4.27
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.78	1.49	10.8	12.8	0.03	0.41	—	0.41	0.38	—	0.38	—	3,585	3,585	0.15	0.03	—	3,597
Dust From Material Movement	—	—	—	—	—	—	5.49	5.49	—	2.82	2.82	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.89	2.89	< 0.005	< 0.005	< 0.005	3.03
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	1.98	2.34	0.01	0.07	—	0.07	0.07	—	0.07	—	594	594	0.02	< 0.005	—	596
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.52	0.52	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.50

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	229	229	< 0.005	< 0.005	0.15	230
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.19	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,022	1,022	0.02	0.16	0.58	1,072
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	213	213	< 0.005	< 0.005	< 0.005	213
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.26	0.38	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,023	1,023	0.02	0.16	0.02	1,072
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.38	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	155
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.90	0.27	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	732	732	0.02	0.12	0.18	768
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.6	25.6	< 0.005	< 0.005	0.01	25.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	121	121	< 0.005	0.02	0.03	127

3.7. Site Preparation (2041) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	2.34	1.97	13.9	17.2	0.05	0.50	—	0.50	0.46	—	0.46	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.00	4.00	< 0.005	< 0.005	< 0.005	4.20
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.34	1.97	13.9	17.2	0.05	0.50	—	0.50	0.46	—	0.46	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.04	4.04	< 0.005	< 0.005	< 0.005	4.24
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.67	1.40	9.93	12.3	0.03	0.35	—	0.35	0.33	—	0.33	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.87	2.87	< 0.005	< 0.005	< 0.005	3.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.26	1.81	2.25	0.01	0.06	—	0.06	0.06	—	0.06	—	592	592	0.02	< 0.005	—	594

Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.62	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	228	228	< 0.005	< 0.005	0.13	228
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.03	1.23	0.40	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,013	1,013	0.02	0.16	0.50	1,063
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.50	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	211	211	< 0.005	< 0.005	< 0.005	212
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.25	0.38	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,014	1,014	0.02	0.16	0.01	1,063
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.37	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	154	154	< 0.005	< 0.005	0.04	154
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.88	0.27	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	724	724	0.02	0.12	0.15	759
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.4	25.4	< 0.005	< 0.005	0.01	25.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	120	120	< 0.005	0.02	0.03	126

3.8. Site Preparation (2041) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.34	1.97	13.9	17.2	0.05	0.50	—	0.50	0.46	—	0.46	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.00	4.00	< 0.005	< 0.005	< 0.005	4.20
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.34	1.97	13.9	17.2	0.05	0.50	—	0.50	0.46	—	0.46	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.04	4.04	< 0.005	< 0.005	< 0.005	4.24
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.67	1.40	9.93	12.3	0.03	0.35	—	0.35	0.33	—	0.33	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.87	2.87	< 0.005	< 0.005	< 0.005	3.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.26	1.81	2.25	0.01	0.06	—	0.06	0.06	—	0.06	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.62	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	228	228	< 0.005	< 0.005	0.13	228
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.03	1.23	0.40	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,013	1,013	0.02	0.16	0.50	1,063
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.50	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	211	211	< 0.005	< 0.005	< 0.005	212
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.25	0.38	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,014	1,014	0.02	0.16	0.01	1,063
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.37	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	154	154	< 0.005	< 0.005	0.04	154
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.88	0.27	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	724	724	0.02	0.12	0.15	759
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.4	25.4	< 0.005	< 0.005	0.01	25.5

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	120	120	< 0.005	0.02	0.03	126

3.9. Site Preparation (2042) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.31	1.94	13.5	16.8	0.05	0.48	—	0.48	0.44	—	0.44	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.98	3.98	< 0.005	< 0.005	< 0.005	4.17
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.31	1.94	13.5	16.8	0.05	0.48	—	0.48	0.44	—	0.44	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.02	4.02	< 0.005	< 0.005	< 0.005	4.22
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.65	1.39	9.66	12.0	0.03	0.34	—	0.34	0.31	—	0.31	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.85	2.85	< 0.005	< 0.005	< 0.005	2.99
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.25	1.76	2.19	0.01	0.06	—	0.06	0.06	—	0.06	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.11	227
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.17	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,005	1,005	0.02	0.16	0.43	1,055
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.49	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	210	210	< 0.005	< 0.005	< 0.005	211
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.24	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,006	1,006	0.02	0.16	0.01	1,055
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.36	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	153	153	< 0.005	< 0.005	0.03	153

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.88	0.26	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	718	718	0.02	0.12	0.13	754
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.3	25.3	< 0.005	< 0.005	0.01	25.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	119	119	< 0.005	0.02	0.02	125

3.10. Site Preparation (2042) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.31	1.94	13.5	16.8	0.05	0.48	—	0.48	0.44	—	0.44	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.98	3.98	< 0.005	< 0.005	< 0.005	4.17
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.31	1.94	13.5	16.8	0.05	0.48	—	0.48	0.44	—	0.44	—	5,006	5,006	0.20	0.04	—	5,023

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.02	4.02	< 0.005	< 0.005	< 0.005	4.22
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.65	1.39	9.66	12.0	0.03	0.34	—	0.34	0.31	—	0.31	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.85	2.85	< 0.005	< 0.005	< 0.005	2.99
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.25	1.76	2.19	0.01	0.06	—	0.06	0.06	—	0.06	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.11	227
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.17	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,005	1,005	0.02	0.16	0.43	1,055

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.49	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	210	210	< 0.005	< 0.005	< 0.005	211
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.24	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,006	1,006	0.02	0.16	0.01	1,055
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.36	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	153	153	< 0.005	< 0.005	0.03	153
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.88	0.26	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	718	718	0.02	0.12	0.13	754
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.3	25.3	< 0.005	< 0.005	0.01	25.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	119	119	< 0.005	0.02	0.02	125

3.11. Site Preparation (2043) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.30	1.93	13.7	16.7	0.05	0.47	—	0.47	0.44	—	0.44	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.15
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.30	1.93	13.7	16.7	0.05	0.47	—	0.47	0.44	—	0.44	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.00	4.00	< 0.005	< 0.005	< 0.005	4.20
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.64	1.38	9.76	11.9	0.03	0.34	—	0.34	0.31	—	0.31	—	3,575	3,575	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.84	2.84	< 0.005	< 0.005	< 0.005	2.98
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.25	1.78	2.18	0.01	0.06	—	0.06	0.06	—	0.06	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.60	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	226	226	< 0.005	< 0.005	0.09	226
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.16	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	999	999	0.01	0.15	0.37	1,046
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.48	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	210
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.23	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,000	1,000	0.01	0.16	0.01	1,046
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.03	152
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.87	0.26	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	714	714	0.01	0.11	0.12	747
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	118	118	< 0.005	0.02	0.02	124

3.12. Site Preparation (2043) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	2.30	1.93	13.7	16.7	0.05	0.47	—	0.47	0.44	—	0.44	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.15
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.30	1.93	13.7	16.7	0.05	0.47	—	0.47	0.44	—	0.44	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.00	4.00	< 0.005	< 0.005	< 0.005	4.20
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.64	1.38	9.76	11.9	0.03	0.34	—	0.34	0.31	—	0.31	—	3,575	3,575	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.84	2.84	< 0.005	< 0.005	< 0.005	2.98
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.25	1.78	2.18	0.01	0.06	—	0.06	0.06	—	0.06	—	592	592	0.02	< 0.005	—	594

Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.60	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	226	226	< 0.005	< 0.005	0.09	226
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.16	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	999	999	0.01	0.15	0.37	1,046
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.48	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	210
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.23	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,000	1,000	0.01	0.16	0.01	1,046
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.03	152
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.87	0.26	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	714	714	0.01	0.11	0.12	747
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	118	118	< 0.005	0.02	0.02	124

3.13. Site Preparation (2044) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.84	12.6	16.0	0.05	0.41	—	0.41	0.38	—	0.38	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.95	3.95	< 0.005	< 0.005	< 0.005	4.14
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.84	12.6	16.0	0.05	0.41	—	0.41	0.38	—	0.38	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.99	3.99	< 0.005	< 0.005	< 0.005	4.19
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.57	1.32	9.00	11.5	0.03	0.30	—	0.30	0.27	—	0.27	—	3,585	3,585	0.15	0.03	—	3,598
Dust From Material Movement	—	—	—	—	—	—	5.49	5.49	—	2.82	2.82	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.84	2.84	< 0.005	< 0.005	< 0.005	2.98
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.24	1.64	2.09	0.01	0.05	—	0.05	0.05	—	0.05	—	594	594	0.02	< 0.005	—	596
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.52	0.52	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	225	225	< 0.005	< 0.005	0.08	225
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.15	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	993	993	0.01	0.15	0.33	1,040
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	209
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.23	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	994	994	0.01	0.16	0.01	1,041
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.02	152
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.86	0.26	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	712	712	0.01	0.11	0.10	745
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	118	118	< 0.005	0.02	0.02	123

3.14. Site Preparation (2044) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.84	12.6	16.0	0.05	0.41	—	0.41	0.38	—	0.38	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.95	3.95	< 0.005	< 0.005	< 0.005	4.14
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.84	12.6	16.0	0.05	0.41	—	0.41	0.38	—	0.38	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.99	3.99	< 0.005	< 0.005	< 0.005	4.19
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	1.57	1.32	9.00	11.5	0.03	0.30	—	0.30	0.27	—	0.27	—	3,585	3,585	0.15	0.03	—	3,598
Dust From Material Movement	—	—	—	—	—	—	5.49	5.49	—	2.82	2.82	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.84	2.84	< 0.005	< 0.005	< 0.005	2.98
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.24	1.64	2.09	0.01	0.05	—	0.05	0.05	—	0.05	—	594	594	0.02	< 0.005	—	596
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.52	0.52	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	225	225	< 0.005	< 0.005	0.08	225
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.15	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	993	993	0.01	0.15	0.33	1,040
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	209
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.23	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	994	994	0.01	0.16	0.01	1,041
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.02	152

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.86	0.26	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	712	712	0.01	0.11	0.10	745
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	118	118	< 0.005	0.02	0.02	123

3.15. Site Preparation (2045) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.84	12.5	16.0	0.05	0.41	—	0.41	0.38	—	0.38	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.94	3.94	< 0.005	< 0.005	< 0.005	4.13
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.84	12.5	16.0	0.05	0.41	—	0.41	0.38	—	0.38	—	5,006	5,006	0.20	0.04	—	5,023

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.98	3.98	< 0.005	< 0.005	< 0.005	4.18
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.56	1.31	8.94	11.4	0.03	0.29	—	0.29	0.27	—	0.27	—	3,575	3,575	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.83	2.83	< 0.005	< 0.005	< 0.005	2.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.24	1.63	2.09	0.01	0.05	—	0.05	0.05	—	0.05	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.07	225
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.15	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	989	989	0.01	0.15	0.29	1,036

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	208	208	< 0.005	< 0.005	< 0.005	208
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.22	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	990	990	0.01	0.16	0.01	1,036
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.86	0.26	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	707	707	0.01	0.11	0.09	740
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.0	25.0	< 0.005	< 0.005	< 0.005	25.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	117	117	< 0.005	0.02	0.01	123

3.16. Site Preparation (2045) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.84	12.5	16.0	0.05	0.41	—	0.41	0.38	—	0.38	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.94	3.94	< 0.005	< 0.005	< 0.005	4.13
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.84	12.5	16.0	0.05	0.41	—	0.41	0.38	—	0.38	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.98	3.98	< 0.005	< 0.005	< 0.005	4.18
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.56	1.31	8.94	11.4	0.03	0.29	—	0.29	0.27	—	0.27	—	3,575	3,575	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.83	2.83	< 0.005	< 0.005	< 0.005	2.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.24	1.63	2.09	0.01	0.05	—	0.05	0.05	—	0.05	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.07	225
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.15	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	989	989	0.01	0.15	0.29	1,036
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	208	208	< 0.005	< 0.005	< 0.005	208
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.22	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	990	990	0.01	0.16	0.01	1,036
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.86	0.26	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	707	707	0.01	0.11	0.09	740
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.0	25.0	< 0.005	< 0.005	< 0.005	25.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	117	117	< 0.005	0.02	0.01	123

3.17. Site Preparation (2046) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	2.09	1.75	11.3	15.6	0.05	0.36	—	0.36	0.33	—	0.33	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.93	3.93	< 0.005	< 0.005	< 0.005	4.12
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.09	1.75	11.3	15.6	0.05	0.36	—	0.36	0.33	—	0.33	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.97	3.97	< 0.005	< 0.005	< 0.005	4.17
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.49	1.25	8.06	11.1	0.03	0.25	—	0.25	0.23	—	0.23	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.82	2.82	< 0.005	< 0.005	< 0.005	2.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.23	1.47	2.03	0.01	0.05	—	0.05	0.04	—	0.04	—	592	592	0.02	< 0.005	—	594

Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.06	224
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.03	1.18	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	985	985	0.01	0.15	0.25	1,032
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	208
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.21	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	986	986	0.01	0.16	0.01	1,033
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.86	0.25	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	704	704	0.01	0.11	0.08	737
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	117	117	< 0.005	0.02	0.01	122

3.18. Site Preparation (2046) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.09	1.75	11.3	15.6	0.05	0.36	—	0.36	0.33	—	0.33	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.93	3.93	< 0.005	< 0.005	< 0.005	4.12
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.09	1.75	11.3	15.6	0.05	0.36	—	0.36	0.33	—	0.33	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.97	3.97	< 0.005	< 0.005	< 0.005	4.17
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.49	1.25	8.06	11.1	0.03	0.25	—	0.25	0.23	—	0.23	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.82	2.82	< 0.005	< 0.005	< 0.005	2.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.23	1.47	2.03	0.01	0.05	—	0.05	0.04	—	0.04	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.06	224
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.03	1.18	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	985	985	0.01	0.15	0.25	1,032
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	208
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.21	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	986	986	0.01	0.16	0.01	1,033
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.86	0.25	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	704	704	0.01	0.11	0.08	737
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	117	117	< 0.005	0.02	0.01	122

3.19. Site Preparation (2047) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.07	1.74	11.0	15.5	0.05	0.35	—	0.35	0.32	—	0.32	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.92	3.92	< 0.005	< 0.005	< 0.005	4.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.07	1.74	11.0	15.5	0.05	0.35	—	0.35	0.32	—	0.32	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.97	3.97	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.43	1.20	7.60	10.8	0.03	0.24	—	0.24	0.22	—	0.22	—	3,468	3,468	0.14	0.03	—	3,480
Dust From Material Movement	—	—	—	—	—	—	5.31	5.31	—	2.73	2.73	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.73	2.73	< 0.005	< 0.005	< 0.005	2.86
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.22	1.39	1.96	0.01	0.04	—	0.04	0.04	—	0.04	—	574	574	0.02	< 0.005	—	576
Dust From Material Movement	—	—	—	—	—	—	0.97	0.97	—	0.50	0.50	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.45	0.45	< 0.005	< 0.005	< 0.005	0.47
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.05	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.03	1.14	0.35	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	982	982	0.01	0.15	0.22	1,029
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.21	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	983	983	0.01	0.16	0.01	1,030
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.33	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	146	146	< 0.005	< 0.005	0.01	146

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.82	0.25	0.01	0.01	0.24	0.25	0.01	0.07	0.08	—	681	681	0.01	0.11	0.07	713
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.1	24.1	< 0.005	< 0.005	< 0.005	24.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.15	0.05	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	113	113	< 0.005	0.02	0.01	118

3.20. Site Preparation (2047) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.07	1.74	11.0	15.5	0.05	0.35	—	0.35	0.32	—	0.32	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.92	3.92	< 0.005	< 0.005	< 0.005	4.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.07	1.74	11.0	15.5	0.05	0.35	—	0.35	0.32	—	0.32	—	5,006	5,006	0.20	0.04	—	5,023

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.97	3.97	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.43	1.20	7.60	10.8	0.03	0.24	—	0.24	0.22	—	0.22	—	3,468	3,468	0.14	0.03	—	3,480
Dust From Material Movement	—	—	—	—	—	—	5.31	5.31	—	2.73	2.73	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.73	2.73	< 0.005	< 0.005	< 0.005	2.86
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.22	1.39	1.96	0.01	0.04	—	0.04	0.04	—	0.04	—	574	574	0.02	< 0.005	—	576
Dust From Material Movement	—	—	—	—	—	—	0.97	0.97	—	0.50	0.50	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.45	0.45	< 0.005	< 0.005	< 0.005	0.47
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.05	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.03	1.14	0.35	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	982	982	0.01	0.15	0.22	1,029

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.21	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	983	983	0.01	0.16	0.01	1,030
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.33	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	146	146	< 0.005	< 0.005	0.01	146
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.82	0.25	0.01	0.01	0.24	0.25	0.01	0.07	0.08	—	681	681	0.01	0.11	0.07	713
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.1	24.1	< 0.005	< 0.005	< 0.005	24.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.15	0.05	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	113	113	< 0.005	0.02	0.01	118

3.21. Grading (2038) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.57	2.16	14.3	23.2	0.06	0.52	—	0.52	0.48	—	0.48	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.08	4.08	< 0.005	< 0.005	< 0.005	4.29
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.57	2.16	14.3	23.2	0.06	0.52	—	0.52	0.48	—	0.48	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.13	4.13	< 0.005	< 0.005	< 0.005	4.33
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.82	1.53	10.2	16.4	0.04	0.37	—	0.37	0.34	—	0.34	—	4,673	4,673	0.19	0.04	—	4,689
Dust From Material Movement	—	—	—	—	—	—	2.54	2.54	—	1.01	1.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.91	2.91	< 0.005	< 0.005	< 0.005	3.05
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	1.85	2.99	0.01	0.07	—	0.07	0.06	—	0.06	—	774	774	0.03	0.01	—	776
Dust From Material Movement	—	—	—	—	—	—	0.46	0.46	—	0.18	0.18	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.50

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.68	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	232	232	< 0.005	< 0.005	0.21	233
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.22	0.39	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,045	1,045	0.02	0.16	0.79	1,095
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.54	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	216	216	< 0.005	< 0.005	0.01	216
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.29	0.40	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,046	1,046	0.02	0.16	0.02	1,096
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.40	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.06	156
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.91	0.28	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	741	741	0.02	0.12	0.24	776
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.17	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	123	123	< 0.005	0.02	0.04	128

3.22. Grading (2038) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	2.57	2.16	14.3	23.2	0.06	0.52	—	0.52	0.48	—	0.48	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.08	4.08	< 0.005	< 0.005	< 0.005	4.29
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.57	2.16	14.3	23.2	0.06	0.52	—	0.52	0.48	—	0.48	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.13	4.13	< 0.005	< 0.005	< 0.005	4.33
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.82	1.53	10.2	16.4	0.04	0.37	—	0.37	0.34	—	0.34	—	4,673	4,673	0.19	0.04	—	4,689
Dust From Material Movement	—	—	—	—	—	—	2.54	2.54	—	1.01	1.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.91	2.91	< 0.005	< 0.005	< 0.005	3.05
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	1.85	2.99	0.01	0.07	—	0.07	0.06	—	0.06	—	774	774	0.03	0.01	—	776

Dust From Material Movement	—	—	—	—	—	—	0.46	0.46	—	0.18	0.18	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.68	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	232	232	< 0.005	< 0.005	0.21	233
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.22	0.39	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,045	1,045	0.02	0.16	0.79	1,095
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.54	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	216	216	< 0.005	< 0.005	0.01	216
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.29	0.40	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,046	1,046	0.02	0.16	0.02	1,096
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.40	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.06	156
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.91	0.28	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	741	741	0.02	0.12	0.24	776
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.17	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	123	123	< 0.005	0.02	0.04	128

3.23. Grading (2039) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.52	2.12	13.8	22.7	0.06	0.50	—	0.50	0.46	—	0.46	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.05	4.05	< 0.005	< 0.005	< 0.005	4.25
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.52	2.12	13.8	22.7	0.06	0.50	—	0.50	0.46	—	0.46	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.09	4.09	< 0.005	< 0.005	< 0.005	4.30
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.80	1.51	9.86	16.2	0.04	0.35	—	0.35	0.33	—	0.33	—	4,712	4,712	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.90	2.90	< 0.005	< 0.005	< 0.005	3.05
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	1.80	2.96	0.01	0.06	—	0.06	0.06	—	0.06	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.66	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	231	231	< 0.005	< 0.005	0.18	231
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.20	0.38	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,033	1,033	0.02	0.16	0.67	1,083
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.52	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	214	214	< 0.005	< 0.005	< 0.005	214
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.27	0.39	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,034	1,034	0.02	0.16	0.02	1,083
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.39	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	156
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.90	0.27	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	738	738	0.02	0.12	0.21	773
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	122	122	< 0.005	0.02	0.03	128

3.24. Grading (2039) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.52	2.12	13.8	22.7	0.06	0.50	—	0.50	0.46	—	0.46	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.05	4.05	< 0.005	< 0.005	< 0.005	4.25
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.52	2.12	13.8	22.7	0.06	0.50	—	0.50	0.46	—	0.46	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.09	4.09	< 0.005	< 0.005	< 0.005	4.30
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	1.80	1.51	9.86	16.2	0.04	0.35	—	0.35	0.33	—	0.33	—	4,712	4,712	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.90	2.90	< 0.005	< 0.005	< 0.005	3.05
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	1.80	2.96	0.01	0.06	—	0.06	0.06	—	0.06	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.66	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	231	231	< 0.005	< 0.005	0.18	231
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.20	0.38	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,033	1,033	0.02	0.16	0.67	1,083
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.52	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	214	214	< 0.005	< 0.005	< 0.005	214
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.27	0.39	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,034	1,034	0.02	0.16	0.02	1,083
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.39	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	156

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.90	0.27	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	738	738	0.02	0.12	0.21	773
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	122	122	< 0.005	0.02	0.03	128

3.25. Grading (2040) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.49	2.10	13.5	22.5	0.06	0.48	—	0.48	0.44	—	0.44	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.02	4.02	< 0.005	< 0.005	< 0.005	4.22
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.49	2.10	13.5	22.5	0.06	0.48	—	0.48	0.44	—	0.44	—	6,596	6,596	0.27	0.05	—	6,619

Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.06	4.06	< 0.005	< 0.005	< 0.005	4.27
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.79	1.50	9.66	16.1	0.04	0.35	—	0.35	0.32	—	0.32	—	4,724	4,724	0.19	0.04	—	4,741
Dust From Material Movement	—	—	—	—	—	—	2.57	2.57	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.89	2.89	< 0.005	< 0.005	< 0.005	3.03
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.27	1.76	2.94	0.01	0.06	—	0.06	0.06	—	0.06	—	782	782	0.03	0.01	—	785
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	229	229	< 0.005	< 0.005	0.15	230
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.19	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,022	1,022	0.02	0.16	0.58	1,072

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	213	213	< 0.005	< 0.005	< 0.005	213
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.26	0.38	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,023	1,023	0.02	0.16	0.02	1,072
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.38	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	155
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.90	0.27	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	732	732	0.02	0.12	0.18	768
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.6	25.6	< 0.005	< 0.005	0.01	25.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	121	121	< 0.005	0.02	0.03	127

3.26. Grading (2040) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.49	2.10	13.5	22.5	0.06	0.48	—	0.48	0.44	—	0.44	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.02	4.02	< 0.005	< 0.005	< 0.005	4.22
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.49	2.10	13.5	22.5	0.06	0.48	—	0.48	0.44	—	0.44	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.06	4.06	< 0.005	< 0.005	< 0.005	4.27
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.79	1.50	9.66	16.1	0.04	0.35	—	0.35	0.32	—	0.32	—	4,724	4,724	0.19	0.04	—	4,741
Dust From Material Movement	—	—	—	—	—	—	2.57	2.57	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.89	2.89	< 0.005	< 0.005	< 0.005	3.03
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.27	1.76	2.94	0.01	0.06	—	0.06	0.06	—	0.06	—	782	782	0.03	0.01	—	785
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.50

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	229	229	< 0.005	< 0.005	0.15	230
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.19	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,022	1,022	0.02	0.16	0.58	1,072
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	213	213	< 0.005	< 0.005	< 0.005	213
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.26	0.38	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,023	1,023	0.02	0.16	0.02	1,072
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.38	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	155
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.90	0.27	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	732	732	0.02	0.12	0.18	768
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.6	25.6	< 0.005	< 0.005	0.01	25.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	121	121	< 0.005	0.02	0.03	127

3.27. Grading (2041) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	2.43	2.04	12.9	22.1	0.06	0.45	—	0.45	0.41	—	0.41	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.00	4.00	< 0.005	< 0.005	< 0.005	4.20
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.43	2.04	12.9	22.1	0.06	0.45	—	0.45	0.41	—	0.41	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.04	4.04	< 0.005	< 0.005	< 0.005	4.24
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.73	1.46	9.20	15.8	0.04	0.32	—	0.32	0.29	—	0.29	—	4,712	4,712	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.87	2.87	< 0.005	< 0.005	< 0.005	3.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	1.68	2.88	0.01	0.06	—	0.06	0.05	—	0.05	—	780	780	0.03	0.01	—	783

Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.62	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	228	228	< 0.005	< 0.005	0.13	228
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.03	1.23	0.40	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,013	1,013	0.02	0.16	0.50	1,063
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.50	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	211	211	< 0.005	< 0.005	< 0.005	212
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.25	0.38	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,014	1,014	0.02	0.16	0.01	1,063
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.37	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	154	154	< 0.005	< 0.005	0.04	154
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.88	0.27	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	724	724	0.02	0.12	0.15	759
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.4	25.4	< 0.005	< 0.005	0.01	25.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	120	120	< 0.005	0.02	0.03	126

3.28. Grading (2041) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.43	2.04	12.9	22.1	0.06	0.45	—	0.45	0.41	—	0.41	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.00	4.00	< 0.005	< 0.005	< 0.005	4.20
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.43	2.04	12.9	22.1	0.06	0.45	—	0.45	0.41	—	0.41	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.04	4.04	< 0.005	< 0.005	< 0.005	4.24
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.73	1.46	9.20	15.8	0.04	0.32	—	0.32	0.29	—	0.29	—	4,712	4,712	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.87	2.87	< 0.005	< 0.005	< 0.005	3.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	1.68	2.88	0.01	0.06	—	0.06	0.05	—	0.05	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.62	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	228	228	< 0.005	< 0.005	0.13	228
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.03	1.23	0.40	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,013	1,013	0.02	0.16	0.50	1,063
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.50	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	211	211	< 0.005	< 0.005	< 0.005	212
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.25	0.38	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,014	1,014	0.02	0.16	0.01	1,063
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.37	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	154	154	< 0.005	< 0.005	0.04	154
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.88	0.27	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	724	724	0.02	0.12	0.15	759
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.4	25.4	< 0.005	< 0.005	0.01	25.5

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	120	120	< 0.005	0.02	0.03	126

3.29. Grading (2042) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.40	2.02	12.5	21.7	0.06	0.43	—	0.43	0.40	—	0.40	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.98	3.98	< 0.005	< 0.005	< 0.005	4.17
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.40	2.02	12.5	21.7	0.06	0.43	—	0.43	0.40	—	0.40	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.02	4.02	< 0.005	< 0.005	< 0.005	4.22
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.71	1.44	8.96	15.5	0.04	0.31	—	0.31	0.28	—	0.28	—	4,712	4,712	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.85	2.85	< 0.005	< 0.005	< 0.005	2.99
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31	0.26	1.63	2.83	0.01	0.06	—	0.06	0.05	—	0.05	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.11	227
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.17	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,005	1,005	0.02	0.16	0.43	1,055
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.49	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	210	210	< 0.005	< 0.005	< 0.005	211
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.24	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,006	1,006	0.02	0.16	0.01	1,055
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.36	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	153	153	< 0.005	< 0.005	0.03	153

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.88	0.26	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	718	718	0.02	0.12	0.13	754
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.3	25.3	< 0.005	< 0.005	0.01	25.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	119	119	< 0.005	0.02	0.02	125

3.30. Grading (2042) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.40	2.02	12.5	21.7	0.06	0.43	—	0.43	0.40	—	0.40	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.98	3.98	< 0.005	< 0.005	< 0.005	4.17
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.40	2.02	12.5	21.7	0.06	0.43	—	0.43	0.40	—	0.40	—	6,596	6,596	0.27	0.05	—	6,619

Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.02	4.02	< 0.005	< 0.005	< 0.005	4.22
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.71	1.44	8.96	15.5	0.04	0.31	—	0.31	0.28	—	0.28	—	4,712	4,712	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.85	2.85	< 0.005	< 0.005	< 0.005	2.99
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31	0.26	1.63	2.83	0.01	0.06	—	0.06	0.05	—	0.05	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.11	227
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.17	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,005	1,005	0.02	0.16	0.43	1,055

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.49	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	210	210	< 0.005	< 0.005	< 0.005	211
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.02	1.24	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,006	1,006	0.02	0.16	0.01	1,055
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.36	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	153	153	< 0.005	< 0.005	0.03	153
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.88	0.26	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	718	718	0.02	0.12	0.13	754
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.3	25.3	< 0.005	< 0.005	0.01	25.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	119	119	< 0.005	0.02	0.02	125

3.31. Grading (2043) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.38	2.00	12.4	21.6	0.06	0.42	—	0.42	0.38	—	0.38	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.15
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.38	2.00	12.4	21.6	0.06	0.42	—	0.42	0.38	—	0.38	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.00	4.00	< 0.005	< 0.005	< 0.005	4.20
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.70	1.43	8.87	15.4	0.04	0.30	—	0.30	0.27	—	0.27	—	4,711	4,711	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.84	2.84	< 0.005	< 0.005	< 0.005	2.98
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31	0.26	1.62	2.81	0.01	0.05	—	0.05	0.05	—	0.05	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.60	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	226	226	< 0.005	< 0.005	0.09	226
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.16	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	999	999	0.01	0.15	0.37	1,046
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.48	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	210
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.23	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,000	1,000	0.01	0.16	0.01	1,046
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.03	152
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.87	0.26	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	714	714	0.01	0.11	0.12	747
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	118	118	< 0.005	0.02	0.02	124

3.32. Grading (2043) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	2.38	2.00	12.4	21.6	0.06	0.42	—	0.42	0.38	—	0.38	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.15
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.38	2.00	12.4	21.6	0.06	0.42	—	0.42	0.38	—	0.38	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.00	4.00	< 0.005	< 0.005	< 0.005	4.20
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.70	1.43	8.87	15.4	0.04	0.30	—	0.30	0.27	—	0.27	—	4,711	4,711	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.84	2.84	< 0.005	< 0.005	< 0.005	2.98
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31	0.26	1.62	2.81	0.01	0.05	—	0.05	0.05	—	0.05	—	780	780	0.03	0.01	—	783

Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.60	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	226	226	< 0.005	< 0.005	0.09	226
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.16	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	999	999	0.01	0.15	0.37	1,046
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.48	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	210
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.23	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,000	1,000	0.01	0.16	0.01	1,046
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.03	152
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.87	0.26	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	714	714	0.01	0.11	0.12	747
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	118	118	< 0.005	0.02	0.02	124

3.33. Grading (2044) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.33	1.96	11.8	21.1	0.06	0.39	—	0.39	0.36	—	0.36	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.95	3.95	< 0.005	< 0.005	< 0.005	4.14
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.33	1.96	11.8	21.1	0.06	0.39	—	0.39	0.36	—	0.36	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.99	3.99	< 0.005	< 0.005	< 0.005	4.19
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.67	1.40	8.49	15.1	0.04	0.28	—	0.28	0.26	—	0.26	—	4,724	4,724	0.19	0.04	—	4,741
Dust From Material Movement	—	—	—	—	—	—	2.57	2.57	—	1.02	1.02	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.84	2.84	< 0.005	< 0.005	< 0.005	2.98
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.26	1.55	2.76	0.01	0.05	—	0.05	0.05	—	0.05	—	782	782	0.03	0.01	—	785
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	225	225	< 0.005	< 0.005	0.08	225
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.15	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	993	993	0.01	0.15	0.33	1,040
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	209
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.23	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	994	994	0.01	0.16	0.01	1,041
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.02	152
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.86	0.26	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	712	712	0.01	0.11	0.10	745
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	118	118	< 0.005	0.02	0.02	123

3.34. Grading (2044) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.33	1.96	11.8	21.1	0.06	0.39	—	0.39	0.36	—	0.36	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.95	3.95	< 0.005	< 0.005	< 0.005	4.14
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.33	1.96	11.8	21.1	0.06	0.39	—	0.39	0.36	—	0.36	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.99	3.99	< 0.005	< 0.005	< 0.005	4.19
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	1.67	1.40	8.49	15.1	0.04	0.28	—	0.28	0.26	—	0.26	—	4,724	4,724	0.19	0.04	—	4,741
Dust From Material Movement	—	—	—	—	—	—	2.57	2.57	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.84	2.84	< 0.005	< 0.005	< 0.005	2.98
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.26	1.55	2.76	0.01	0.05	—	0.05	0.05	—	0.05	—	782	782	0.03	0.01	—	785
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	225	225	< 0.005	< 0.005	0.08	225
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.15	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	993	993	0.01	0.15	0.33	1,040
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	209
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.23	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	994	994	0.01	0.16	0.01	1,041
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.02	152

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.86	0.26	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	712	712	0.01	0.11	0.10	745
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	118	118	< 0.005	0.02	0.02	123

3.35. Grading (2045) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.31	1.94	11.6	21.0	0.06	0.38	—	0.38	0.35	—	0.35	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.94	3.94	< 0.005	< 0.005	< 0.005	4.13
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.31	1.94	11.6	21.0	0.06	0.38	—	0.38	0.35	—	0.35	—	6,596	6,596	0.27	0.05	—	6,619

Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.98	3.98	< 0.005	< 0.005	< 0.005	4.18
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.65	1.38	8.32	15.0	0.04	0.27	—	0.27	0.25	—	0.25	—	4,711	4,711	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.83	2.83	< 0.005	< 0.005	< 0.005	2.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.25	1.52	2.73	0.01	0.05	—	0.05	0.05	—	0.05	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.07	225
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.15	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	989	989	0.01	0.15	0.29	1,036

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	208	208	< 0.005	< 0.005	< 0.005	208
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.22	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	990	990	0.01	0.16	0.01	1,036
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.86	0.26	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	707	707	0.01	0.11	0.09	740
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.0	25.0	< 0.005	< 0.005	< 0.005	25.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	117	117	< 0.005	0.02	0.01	123

3.36. Grading (2045) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.31	1.94	11.6	21.0	0.06	0.38	—	0.38	0.35	—	0.35	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.94	3.94	< 0.005	< 0.005	< 0.005	4.13
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.31	1.94	11.6	21.0	0.06	0.38	—	0.38	0.35	—	0.35	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.98	3.98	< 0.005	< 0.005	< 0.005	4.18
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.65	1.38	8.32	15.0	0.04	0.27	—	0.27	0.25	—	0.25	—	4,711	4,711	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.83	2.83	< 0.005	< 0.005	< 0.005	2.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.25	1.52	2.73	0.01	0.05	—	0.05	0.05	—	0.05	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.07	225
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.15	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	989	989	0.01	0.15	0.29	1,036
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	208	208	< 0.005	< 0.005	< 0.005	208
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.22	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	990	990	0.01	0.16	0.01	1,036
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.86	0.26	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	707	707	0.01	0.11	0.09	740
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.0	25.0	< 0.005	< 0.005	< 0.005	25.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	117	117	< 0.005	0.02	0.01	123

3.37. Grading (2046) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	2.25	1.89	11.1	20.7	0.06	0.35	—	0.35	0.32	—	0.32	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.93	3.93	< 0.005	< 0.005	< 0.005	4.12
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.25	1.89	11.1	20.7	0.06	0.35	—	0.35	0.32	—	0.32	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.97	3.97	< 0.005	< 0.005	< 0.005	4.17
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.61	1.35	7.90	14.8	0.04	0.25	—	0.25	0.23	—	0.23	—	4,712	4,712	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.82	2.82	< 0.005	< 0.005	< 0.005	2.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.25	1.44	2.70	0.01	0.05	—	0.05	0.04	—	0.04	—	780	780	0.03	0.01	—	783

Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.06	224
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.03	1.18	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	985	985	0.01	0.15	0.25	1,032
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	208
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.21	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	986	986	0.01	0.16	0.01	1,033
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.86	0.25	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	704	704	0.01	0.11	0.08	737
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	117	117	< 0.005	0.02	0.01	122

3.38. Grading (2046) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.25	1.89	11.1	20.7	0.06	0.35	—	0.35	0.32	—	0.32	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.93	3.93	< 0.005	< 0.005	< 0.005	4.12
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.25	1.89	11.1	20.7	0.06	0.35	—	0.35	0.32	—	0.32	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.97	3.97	< 0.005	< 0.005	< 0.005	4.17
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.61	1.35	7.90	14.8	0.04	0.25	—	0.25	0.23	—	0.23	—	4,712	4,712	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.82	2.82	< 0.005	< 0.005	< 0.005	2.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.25	1.44	2.70	0.01	0.05	—	0.05	0.04	—	0.04	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.06	224
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.03	1.18	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	985	985	0.01	0.15	0.25	1,032
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	208
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.21	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	986	986	0.01	0.16	0.01	1,033
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.86	0.25	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	704	704	0.01	0.11	0.08	737
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	117	117	< 0.005	0.02	0.01	122

3.39. Grading (2047) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.23	1.87	10.7	20.6	0.06	0.34	—	0.34	0.31	—	0.31	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.92	3.92	< 0.005	< 0.005	< 0.005	4.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.23	1.87	10.7	20.6	0.06	0.34	—	0.34	0.31	—	0.31	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.97	3.97	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.54	1.30	7.44	14.2	0.04	0.23	—	0.23	0.21	—	0.21	—	4,570	4,570	0.19	0.04	—	4,585
Dust From Material Movement	—	—	—	—	—	—	2.49	2.49	—	0.99	0.99	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.73	2.73	< 0.005	< 0.005	< 0.005	2.86
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.24	1.36	2.60	0.01	0.04	—	0.04	0.04	—	0.04	—	757	757	0.03	0.01	—	759
Dust From Material Movement	—	—	—	—	—	—	0.45	0.45	—	0.18	0.18	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.45	0.45	< 0.005	< 0.005	< 0.005	0.47
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.05	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.03	1.14	0.35	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	982	982	0.01	0.15	0.22	1,029
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.21	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	983	983	0.01	0.16	0.01	1,030
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.33	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	146	146	< 0.005	< 0.005	0.01	146

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.82	0.25	0.01	0.01	0.24	0.25	0.01	0.07	0.08	—	681	681	0.01	0.11	0.07	713
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.1	24.1	< 0.005	< 0.005	< 0.005	24.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.15	0.05	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	113	113	< 0.005	0.02	0.01	118

3.40. Grading (2047) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.23	1.87	10.7	20.6	0.06	0.34	—	0.34	0.31	—	0.31	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.92	3.92	< 0.005	< 0.005	< 0.005	4.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.23	1.87	10.7	20.6	0.06	0.34	—	0.34	0.31	—	0.31	—	6,596	6,596	0.27	0.05	—	6,619

Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.97	3.97	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.54	1.30	7.44	14.2	0.04	0.23	—	0.23	0.21	—	0.21	—	4,570	4,570	0.19	0.04	—	4,585
Dust From Material Movement	—	—	—	—	—	—	2.49	2.49	—	0.99	0.99	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.73	2.73	< 0.005	< 0.005	< 0.005	2.86
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.24	1.36	2.60	0.01	0.04	—	0.04	0.04	—	0.04	—	757	757	0.03	0.01	—	759
Dust From Material Movement	—	—	—	—	—	—	0.45	0.45	—	0.18	0.18	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.45	0.45	< 0.005	< 0.005	< 0.005	0.47
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.05	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.03	1.14	0.35	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	982	982	0.01	0.15	0.22	1,029

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.21	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	983	983	0.01	0.16	0.01	1,030
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.33	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	146	146	< 0.005	< 0.005	0.01	146
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.82	0.25	0.01	0.01	0.24	0.25	0.01	0.07	0.08	—	681	681	0.01	0.11	0.07	713
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.1	24.1	< 0.005	< 0.005	< 0.005	24.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.15	0.05	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	113	113	< 0.005	0.02	0.01	118

3.41. Building Construction (2038) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	0.72	6.12	11.9	0.02	0.12	—	0.12	0.11	—	0.11	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.85	0.72	6.12	11.9	0.02	0.12	—	0.12	0.11	—	0.11	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.60	0.51	4.33	8.46	0.02	0.09	—	0.09	0.08	—	0.08	—	1,624	1,624	0.07	0.01	—	1,630
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.79	1.54	< 0.005	0.02	—	0.02	0.01	—	0.01	—	269	269	0.01	< 0.005	—	270
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.22	0.16	3.39	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,162	1,162	0.01	0.01	1.04	1,165
Vendor	0.03	0.02	0.69	0.30	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	658	658	0.01	0.10	0.42	689
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.22	0.17	2.70	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,078	1,078	0.01	0.01	0.03	1,080
Vendor	0.03	0.02	0.74	0.31	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	659	659	0.01	0.10	0.01	689
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.16	0.15	0.12	2.00	0.00	0.00	0.86	0.86	0.00	0.20	0.20	—	776	776	0.01	< 0.005	0.32	778
Vendor	0.02	0.01	0.52	0.21	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	467	467	0.01	0.07	0.13	488
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.36	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	129	129	< 0.005	< 0.005	0.05	129
Vendor	< 0.005	< 0.005	0.09	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	77.3	77.3	< 0.005	0.01	0.02	80.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.42. Building Construction (2038) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	0.72	6.12	11.9	0.02	0.12	—	0.12	0.11	—	0.11	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	0.72	6.12	11.9	0.02	0.12	—	0.12	0.11	—	0.11	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.60	0.51	4.33	8.46	0.02	0.09	—	0.09	0.08	—	0.08	—	1,624	1,624	0.07	0.01	—	1,630
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.79	1.54	< 0.005	0.02	—	0.02	0.01	—	0.01	—	269	269	0.01	< 0.005	—	270
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.22	0.16	3.39	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,162	1,162	0.01	0.01	1.04	1,165
Vendor	0.03	0.02	0.69	0.30	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	658	658	0.01	0.10	0.42	689
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.22	0.17	2.70	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,078	1,078	0.01	0.01	0.03	1,080
Vendor	0.03	0.02	0.74	0.31	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	659	659	0.01	0.10	0.01	689
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.15	0.12	2.00	0.00	0.00	0.86	0.86	0.00	0.20	0.20	—	776	776	0.01	< 0.005	0.32	778
Vendor	0.02	0.01	0.52	0.21	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	467	467	0.01	0.07	0.13	488
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.36	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	129	129	< 0.005	< 0.005	0.05	129
Vendor	< 0.005	< 0.005	0.09	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	77.3	77.3	< 0.005	0.01	0.02	80.8

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.43. Building Construction (2039) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.84	0.71	6.00	11.9	0.02	0.12	—	0.12	0.11	—	0.11	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.84	0.71	6.00	11.9	0.02	0.12	—	0.12	0.11	—	0.11	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.60	0.51	4.29	8.49	0.02	0.08	—	0.08	0.08	—	0.08	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.11	0.09	0.78	1.55	< 0.005	0.02	—	0.02	0.01	—	0.01	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.21	0.12	3.30	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,154	1,154	0.01	0.01	0.89	1,157
Vendor	0.03	0.02	0.69	0.29	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	643	643	0.01	0.10	0.34	673
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.21	0.17	2.60	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,070	1,070	0.01	0.01	0.02	1,072
Vendor	0.03	0.02	0.72	0.30	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	644	644	0.01	0.10	0.01	674
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.15	0.12	1.94	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	777	777	0.01	< 0.005	0.27	779
Vendor	0.02	0.01	0.51	0.21	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	460	460	0.01	0.07	0.10	481
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.35	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	129	129	< 0.005	< 0.005	0.05	129
Vendor	< 0.005	< 0.005	0.09	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	76.1	76.1	< 0.005	0.01	0.02	79.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.44. Building Construction (2039) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.84	0.71	6.00	11.9	0.02	0.12	—	0.12	0.11	—	0.11	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.84	0.71	6.00	11.9	0.02	0.12	—	0.12	0.11	—	0.11	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.60	0.51	4.29	8.49	0.02	0.08	—	0.08	0.08	—	0.08	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.78	1.55	< 0.005	0.02	—	0.02	0.01	—	0.01	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.21	0.12	3.30	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,154	1,154	0.01	0.01	0.89	1,157
Vendor	0.03	0.02	0.69	0.29	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	643	643	0.01	0.10	0.34	673
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.21	0.17	2.60	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,070	1,070	0.01	0.01	0.02	1,072
Vendor	0.03	0.02	0.72	0.30	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	644	644	0.01	0.10	0.01	674
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.15	0.12	1.94	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	777	777	0.01	< 0.005	0.27	779
Vendor	0.02	0.01	0.51	0.21	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	460	460	0.01	0.07	0.10	481
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.35	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	129	129	< 0.005	< 0.005	0.05	129
Vendor	< 0.005	< 0.005	0.09	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	76.1	76.1	< 0.005	0.01	0.02	79.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.45. Building Construction (2040) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.84	0.70	5.93	11.9	0.02	0.11	—	0.11	0.10	—	0.10	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.84	0.70	5.93	11.9	0.02	0.11	—	0.11	0.10	—	0.10	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.60	0.50	4.25	8.50	0.02	0.08	—	0.08	0.07	—	0.07	—	1,642	1,642	0.07	0.01	—	1,648
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.77	1.55	< 0.005	0.01	—	0.01	0.01	—	0.01	—	272	272	0.01	< 0.005	—	273
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.16	0.12	3.20	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,146	1,146	0.01	0.01	0.76	1,149
Vendor	0.03	0.02	0.67	0.29	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	629	629	0.01	0.09	0.27	658
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.16	0.17	2.54	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,063	1,063	0.01	0.01	0.02	1,066
Vendor	0.03	0.02	0.72	0.29	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	630	630	0.01	0.09	0.01	658
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.11	0.12	1.91	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	774	774	0.01	< 0.005	0.23	776
Vendor	0.02	0.01	0.50	0.21	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	451	451	0.01	0.07	0.08	471
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	128	128	< 0.005	< 0.005	0.04	129
Vendor	< 0.005	< 0.005	0.09	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	74.7	74.7	< 0.005	0.01	0.01	78.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.46. Building Construction (2040) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.84	0.70	5.93	11.9	0.02	0.11	—	0.11	0.10	—	0.10	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.84	0.70	5.93	11.9	0.02	0.11	—	0.11	0.10	—	0.10	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.60	0.50	4.25	8.50	0.02	0.08	—	0.08	0.07	—	0.07	—	1,642	1,642	0.07	0.01	—	1,648
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.11	0.09	0.77	1.55	< 0.005	0.01	—	0.01	0.01	—	0.01	—	272	272	0.01	< 0.005	—	273
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.16	0.12	3.20	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,146	1,146	0.01	0.01	0.76	1,149
Vendor	0.03	0.02	0.67	0.29	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	629	629	0.01	0.09	0.27	658
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.16	0.17	2.54	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,063	1,063	0.01	0.01	0.02	1,066
Vendor	0.03	0.02	0.72	0.29	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	630	630	0.01	0.09	0.01	658
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.14	0.11	0.12	1.91	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	774	774	0.01	< 0.005	0.23	776
Vendor	0.02	0.01	0.50	0.21	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	451	451	0.01	0.07	0.08	471
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	128	128	< 0.005	< 0.005	0.04	129
Vendor	< 0.005	< 0.005	0.09	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	74.7	74.7	< 0.005	0.01	0.01	78.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.47. Building Construction (2041) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.83	0.70	5.87	11.8	0.02	0.11	—	0.11	0.10	—	0.10	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.83	0.70	5.87	11.8	0.02	0.11	—	0.11	0.10	—	0.10	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.60	0.50	4.19	8.44	0.02	0.08	—	0.08	0.07	—	0.07	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.77	1.54	< 0.005	0.01	—	0.01	0.01	—	0.01	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.15	0.12	3.11	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,140	1,140	0.01	0.01	0.64	1,142
Vendor	0.03	0.02	0.69	0.30	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	617	617	0.01	0.09	0.22	645
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.15	0.16	2.49	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,057	1,057	0.01	0.01	0.02	1,059
Vendor	0.03	0.02	0.70	0.29	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	618	618	0.01	0.09	0.01	646
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.11	0.09	1.83	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	768	768	0.01	< 0.005	0.20	770
Vendor	0.02	0.01	0.49	0.21	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	441	441	0.01	0.07	0.07	461
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.33	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	127	127	< 0.005	< 0.005	0.03	127
Vendor	< 0.005	< 0.005	0.09	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	73.0	73.0	< 0.005	0.01	0.01	76.3

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.48. Building Construction (2041) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.83	0.70	5.87	11.8	0.02	0.11	—	0.11	0.10	—	0.10	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.83	0.70	5.87	11.8	0.02	0.11	—	0.11	0.10	—	0.10	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.60	0.50	4.19	8.44	0.02	0.08	—	0.08	0.07	—	0.07	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.11	0.09	0.77	1.54	< 0.005	0.01	—	0.01	0.01	—	0.01	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.15	0.12	3.11	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,140	1,140	0.01	0.01	0.64	1,142
Vendor	0.03	0.02	0.69	0.30	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	617	617	0.01	0.09	0.22	645
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.20	0.15	0.16	2.49	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,057	1,057	0.01	0.01	0.02	1,059
Vendor	0.03	0.02	0.70	0.29	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	618	618	0.01	0.09	0.01	646
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.11	0.09	1.83	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	768	768	0.01	< 0.005	0.20	770
Vendor	0.02	0.01	0.49	0.21	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	441	441	0.01	0.07	0.07	461
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.33	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	127	127	< 0.005	< 0.005	0.03	127
Vendor	< 0.005	< 0.005	0.09	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	73.0	73.0	< 0.005	0.01	0.01	76.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.49. Building Construction (2042) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.83	0.70	5.83	11.8	0.02	0.10	—	0.10	0.10	—	0.10	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.83	0.70	5.83	11.8	0.02	0.10	—	0.10	0.10	—	0.10	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.59	0.50	4.16	8.43	0.02	0.07	—	0.07	0.07	—	0.07	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.54	< 0.005	0.01	—	0.01	0.01	—	0.01	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.15	0.12	3.06	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,134	1,134	0.01	0.01	0.55	1,137
Vendor	0.03	0.02	0.65	0.28	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	606	606	0.01	0.09	0.17	634
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.14	0.12	2.43	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,052	1,052	0.01	0.01	0.01	1,054
Vendor	0.03	0.02	0.69	0.29	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	607	607	0.01	0.09	< 0.005	635
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.10	0.09	1.80	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	764	764	0.01	< 0.005	0.17	766
Vendor	0.02	0.01	0.49	0.20	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	433	433	0.01	0.07	0.05	453
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.33	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	126	126	< 0.005	< 0.005	0.03	127
Vendor	< 0.005	< 0.005	0.09	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	71.7	71.7	< 0.005	0.01	0.01	75.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.50. Building Construction (2042) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.83	0.70	5.83	11.8	0.02	0.10	—	0.10	0.10	—	0.10	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.83	0.70	5.83	11.8	0.02	0.10	—	0.10	0.10	—	0.10	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.59	0.50	4.16	8.43	0.02	0.07	—	0.07	0.07	—	0.07	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.54	< 0.005	0.01	—	0.01	0.01	—	0.01	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.15	0.12	3.06	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,134	1,134	0.01	0.01	0.55	1,137
Vendor	0.03	0.02	0.65	0.28	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	606	606	0.01	0.09	0.17	634
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.14	0.12	2.43	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,052	1,052	0.01	0.01	0.01	1,054
Vendor	0.03	0.02	0.69	0.29	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	607	607	0.01	0.09	< 0.005	635
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.10	0.09	1.80	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	764	764	0.01	< 0.005	0.17	766
Vendor	0.02	0.01	0.49	0.20	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	433	433	0.01	0.07	0.05	453
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.33	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	126	126	< 0.005	< 0.005	0.03	127
Vendor	< 0.005	< 0.005	0.09	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	71.7	71.7	< 0.005	0.01	0.01	75.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.51. Building Construction (2043) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	5.77	11.8	0.02	0.10	—	0.10	0.09	—	0.09	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.82	0.69	5.77	11.8	0.02	0.10	—	0.10	0.09	—	0.09	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.59	0.49	4.12	8.40	0.02	0.07	—	0.07	0.07	—	0.07	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.53	< 0.005	0.01	—	0.01	0.01	—	0.01	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.14	0.12	3.01	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,129	1,129	0.01	< 0.005	0.46	1,131
Vendor	0.03	0.02	0.64	0.28	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	597	597	0.01	0.09	0.14	625
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.14	0.12	2.38	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,047	1,047	0.01	0.01	0.01	1,050
Vendor	0.03	0.02	0.68	0.29	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	597	597	0.01	0.09	< 0.005	625
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.13	0.10	0.09	1.76	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	761	761	0.01	< 0.005	0.14	762
Vendor	0.02	0.01	0.48	0.20	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	426	426	0.01	0.07	0.04	446
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.32	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	126	126	< 0.005	< 0.005	0.02	126
Vendor	< 0.005	< 0.005	0.09	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	70.6	70.6	< 0.005	0.01	0.01	73.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.52. Building Construction (2043) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	5.77	11.8	0.02	0.10	—	0.10	0.09	—	0.09	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	5.77	11.8	0.02	0.10	—	0.10	0.09	—	0.09	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.59	0.49	4.12	8.40	0.02	0.07	—	0.07	0.07	—	0.07	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.53	< 0.005	0.01	—	0.01	0.01	—	0.01	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.14	0.12	3.01	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,129	1,129	0.01	< 0.005	0.46	1,131
Vendor	0.03	0.02	0.64	0.28	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	597	597	0.01	0.09	0.14	625
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.14	0.12	2.38	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,047	1,047	0.01	0.01	0.01	1,050
Vendor	0.03	0.02	0.68	0.29	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	597	597	0.01	0.09	< 0.005	625
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.10	0.09	1.76	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	761	761	0.01	< 0.005	0.14	762
Vendor	0.02	0.01	0.48	0.20	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	426	426	0.01	0.07	0.04	446
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.32	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	126	126	< 0.005	< 0.005	0.02	126
Vendor	< 0.005	< 0.005	0.09	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	70.6	70.6	< 0.005	0.01	0.01	73.9

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.53. Building Construction (2044) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81	0.68	5.71	11.7	0.02	0.09	—	0.09	0.09	—	0.09	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81	0.68	5.71	11.7	0.02	0.09	—	0.09	0.09	—	0.09	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.49	4.09	8.39	0.02	0.07	—	0.07	0.06	—	0.06	—	1,642	1,642	0.07	0.01	—	1,648
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.11	0.09	0.75	1.53	< 0.005	0.01	—	0.01	0.01	—	0.01	—	272	272	0.01	< 0.005	—	273
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.14	0.12	2.96	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,125	1,125	0.01	< 0.005	0.39	1,127
Vendor	0.03	0.02	0.64	0.27	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	588	588	0.01	0.09	0.11	614
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.14	0.12	2.33	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,044	1,044	0.01	0.01	0.01	1,046
Vendor	0.03	0.02	0.68	0.28	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	589	589	0.01	0.09	< 0.005	615
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.10	0.09	1.76	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	760	760	< 0.005	< 0.005	0.12	762
Vendor	0.02	0.01	0.48	0.20	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	422	422	0.01	0.06	0.04	440
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.32	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	126	126	< 0.005	< 0.005	0.02	126
Vendor	< 0.005	< 0.005	0.09	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	69.8	69.8	< 0.005	0.01	0.01	72.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.54. Building Construction (2044) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81	0.68	5.71	11.7	0.02	0.09	—	0.09	0.09	—	0.09	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81	0.68	5.71	11.7	0.02	0.09	—	0.09	0.09	—	0.09	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.49	4.09	8.39	0.02	0.07	—	0.07	0.06	—	0.06	—	1,642	1,642	0.07	0.01	—	1,648
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.53	< 0.005	0.01	—	0.01	0.01	—	0.01	—	272	272	0.01	< 0.005	—	273
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.14	0.12	2.96	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,125	1,125	0.01	< 0.005	0.39	1,127
Vendor	0.03	0.02	0.64	0.27	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	588	588	0.01	0.09	0.11	614
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.14	0.12	2.33	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,044	1,044	0.01	0.01	0.01	1,046
Vendor	0.03	0.02	0.68	0.28	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	589	589	0.01	0.09	< 0.005	615
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.10	0.09	1.76	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	760	760	< 0.005	< 0.005	0.12	762
Vendor	0.02	0.01	0.48	0.20	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	422	422	0.01	0.06	0.04	440
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.32	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	126	126	< 0.005	< 0.005	0.02	126
Vendor	< 0.005	< 0.005	0.09	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	69.8	69.8	< 0.005	0.01	0.01	72.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.55. Building Construction (2045) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.81	0.67	5.64	11.6	0.02	0.09	—	0.09	0.08	—	0.08	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81	0.67	5.64	11.6	0.02	0.09	—	0.09	0.08	—	0.08	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.48	4.03	8.31	0.02	0.06	—	0.06	0.06	—	0.06	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.74	1.52	< 0.005	0.01	—	0.01	0.01	—	0.01	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.13	0.12	2.96	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,121	1,121	0.01	< 0.005	0.33	1,123
Vendor	0.03	0.02	0.63	0.27	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	581	581	0.01	0.09	0.09	607
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.12	2.33	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,040	1,040	0.01	0.01	0.01	1,042
Vendor	0.03	0.02	0.67	0.28	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	582	582	0.01	0.09	< 0.005	608
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.09	1.72	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	755	755	< 0.005	< 0.005	0.10	757
Vendor	0.02	0.01	0.47	0.20	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	415	415	0.01	0.06	0.03	434
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.31	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	125	125	< 0.005	< 0.005	0.02	125
Vendor	< 0.005	< 0.005	0.09	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	68.7	68.7	< 0.005	0.01	< 0.005	71.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.56. Building Construction (2045) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81	0.67	5.64	11.6	0.02	0.09	—	0.09	0.08	—	0.08	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.81	0.67	5.64	11.6	0.02	0.09	—	0.09	0.08	—	0.08	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.58	0.48	4.03	8.31	0.02	0.06	—	0.06	0.06	—	0.06	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.10	0.09	0.74	1.52	< 0.005	0.01	—	0.01	0.01	—	0.01	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.13	0.12	2.96	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,121	1,121	0.01	< 0.005	0.33	1,123
Vendor	0.03	0.02	0.63	0.27	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	581	581	0.01	0.09	0.09	607
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.12	2.33	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,040	1,040	0.01	0.01	0.01	1,042
Vendor	0.03	0.02	0.67	0.28	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	582	582	0.01	0.09	< 0.005	608
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.10	0.09	0.09	1.72	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	755	755	< 0.005	< 0.005	0.10	757
Vendor	0.02	0.01	0.47	0.20	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	415	415	0.01	0.06	0.03	434
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.31	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	125	125	< 0.005	< 0.005	0.02	125
Vendor	< 0.005	< 0.005	0.09	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	68.7	68.7	< 0.005	0.01	< 0.005	71.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.57. Building Construction (2046) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.80	0.67	5.60	11.6	0.02	0.09	—	0.09	0.08	—	0.08	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.80	0.67	5.60	11.6	0.02	0.09	—	0.09	0.08	—	0.08	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.57	0.48	4.00	8.28	0.02	0.06	—	0.06	0.06	—	0.06	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.73	1.51	< 0.005	0.01	—	0.01	0.01	—	0.01	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.13	0.11	2.92	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,118	1,118	0.01	< 0.005	0.28	1,120
Vendor	0.03	0.02	0.64	0.28	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	575	575	0.01	0.09	0.07	601
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.12	2.28	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,037	1,037	0.01	0.01	0.01	1,039
Vendor	0.03	0.02	0.67	0.28	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	576	576	0.01	0.09	< 0.005	601
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.09	1.72	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	753	753	< 0.005	< 0.005	0.09	755
Vendor	0.02	0.01	0.46	0.20	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	411	411	0.01	0.06	0.02	429
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.31	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	125	125	< 0.005	< 0.005	0.01	125
Vendor	< 0.005	< 0.005	0.08	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	68.0	68.0	< 0.005	0.01	< 0.005	71.1

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.58. Building Construction (2046) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	0.67	5.60	11.6	0.02	0.09	—	0.09	0.08	—	0.08	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	0.67	5.60	11.6	0.02	0.09	—	0.09	0.08	—	0.08	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57	0.48	4.00	8.28	0.02	0.06	—	0.06	0.06	—	0.06	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.10	0.09	0.73	1.51	< 0.005	0.01	—	0.01	0.01	—	0.01	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.13	0.11	2.92	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,118	1,118	0.01	< 0.005	0.28	1,120
Vendor	0.03	0.02	0.64	0.28	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	575	575	0.01	0.09	0.07	601
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.12	2.28	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,037	1,037	0.01	0.01	0.01	1,039
Vendor	0.03	0.02	0.67	0.28	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	576	576	0.01	0.09	< 0.005	601
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.09	1.72	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	753	753	< 0.005	< 0.005	0.09	755
Vendor	0.02	0.01	0.46	0.20	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	411	411	0.01	0.06	0.02	429
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.31	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	125	125	< 0.005	< 0.005	0.01	125
Vendor	< 0.005	< 0.005	0.08	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	68.0	68.0	< 0.005	0.01	< 0.005	71.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.59. Building Construction (2047) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	0.67	5.55	11.6	0.02	0.08	—	0.08	0.08	—	0.08	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	0.67	5.55	11.6	0.02	0.08	—	0.08	0.08	—	0.08	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	0.46	3.85	8.01	0.02	0.06	—	0.06	0.05	—	0.05	—	1,588	1,588	0.06	0.01	—	1,594
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.70	1.46	< 0.005	0.01	—	0.01	0.01	—	0.01	—	263	263	0.01	< 0.005	—	264
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.11	2.91	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,116	1,116	0.01	< 0.005	0.24	1,117
Vendor	0.03	0.02	0.62	0.27	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	569	569	0.01	0.09	0.06	595
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.12	2.28	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,035	1,035	0.01	0.01	0.01	1,037
Vendor	0.03	0.02	0.66	0.28	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	570	570	0.01	0.09	< 0.005	596
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.08	1.66	0.00	0.00	0.84	0.84	0.00	0.20	0.20	—	729	729	< 0.005	< 0.005	0.07	730
Vendor	0.02	0.01	0.45	0.19	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	395	395	0.01	0.06	0.02	413
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.30	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	121	121	< 0.005	< 0.005	0.01	121
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	65.3	65.3	< 0.005	0.01	< 0.005	68.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.60. Building Construction (2047) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.80	0.67	5.55	11.6	0.02	0.08	—	0.08	0.08	—	0.08	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	0.67	5.55	11.6	0.02	0.08	—	0.08	0.08	—	0.08	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	0.46	3.85	8.01	0.02	0.06	—	0.06	0.05	—	0.05	—	1,588	1,588	0.06	0.01	—	1,594
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.70	1.46	< 0.005	0.01	—	0.01	0.01	—	0.01	—	263	263	0.01	< 0.005	—	264
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.11	2.91	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,116	1,116	0.01	< 0.005	0.24	1,117
Vendor	0.03	0.02	0.62	0.27	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	569	569	0.01	0.09	0.06	595
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.12	2.28	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,035	1,035	0.01	0.01	0.01	1,037
Vendor	0.03	0.02	0.66	0.28	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	570	570	0.01	0.09	< 0.005	596
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.08	1.66	0.00	0.00	0.84	0.84	0.00	0.20	0.20	—	729	729	< 0.005	< 0.005	0.07	730
Vendor	0.02	0.01	0.45	0.19	< 0.005	< 0.005	0.17	0.17	< 0.005	0.05	0.05	—	395	395	0.01	0.06	0.02	413
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.30	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	121	121	< 0.005	< 0.005	0.01	121
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	65.3	65.3	< 0.005	0.01	< 0.005	68.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.61. Paving (2038) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.59	0.50	5.38	9.76	0.01	0.11	—	0.11	0.10	—	0.10	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.59	0.50	5.38	9.76	0.01	0.11	—	0.11	0.10	—	0.10	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42	0.35	3.81	6.91	0.01	0.08	—	0.08	0.07	—	0.07	—	1,070	1,070	0.04	0.01	—	1,074
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.70	1.26	< 0.005	0.01	—	0.01	0.01	—	0.01	—	177	177	0.01	< 0.005	—	178
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.68	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	232	232	< 0.005	< 0.005	0.21	233
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	219	219	< 0.005	0.03	0.14	230
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.54	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	216	216	< 0.005	< 0.005	0.01	216
Vendor	0.01	0.01	0.25	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	220	220	< 0.005	0.03	< 0.005	230
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.40	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.06	156
Vendor	0.01	< 0.005	0.17	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	156	156	< 0.005	0.02	0.04	163
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.8	25.8	< 0.005	< 0.005	0.01	26.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.62. Paving (2038) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.59	0.50	5.38	9.76	0.01	0.11	—	0.11	0.10	—	0.10	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.59	0.50	5.38	9.76	0.01	0.11	—	0.11	0.10	—	0.10	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42	0.35	3.81	6.91	0.01	0.08	—	0.08	0.07	—	0.07	—	1,070	1,070	0.04	0.01	—	1,074
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.70	1.26	< 0.005	0.01	—	0.01	0.01	—	0.01	—	177	177	0.01	< 0.005	—	178
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.68	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	232	232	< 0.005	< 0.005	0.21	233
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	219	219	< 0.005	0.03	0.14	230
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.54	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	216	216	< 0.005	< 0.005	0.01	216
Vendor	0.01	0.01	0.25	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	220	220	< 0.005	0.03	< 0.005	230
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.40	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.06	156
Vendor	0.01	< 0.005	0.17	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	156	156	< 0.005	0.02	0.04	163
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.8	25.8	< 0.005	< 0.005	0.01	26.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.63. Paving (2039) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.49	5.31	9.75	0.01	0.11	—	0.11	0.10	—	0.10	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.49	5.31	9.75	0.01	0.11	—	0.11	0.10	—	0.10	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42	0.35	3.79	6.97	0.01	0.08	—	0.08	0.07	—	0.07	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.69	1.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.66	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	231	231	< 0.005	< 0.005	0.18	231
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	214	214	< 0.005	0.03	0.11	224
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.52	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	214	214	< 0.005	< 0.005	< 0.005	214
Vendor	0.01	0.01	0.24	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	215	215	< 0.005	0.03	< 0.005	225
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.39	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	156
Vendor	0.01	< 0.005	0.17	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	153	153	< 0.005	0.02	0.03	160
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.4	25.4	< 0.005	< 0.005	0.01	26.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.64. Paving (2039) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.49	5.31	9.75	0.01	0.11	—	0.11	0.10	—	0.10	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.49	5.31	9.75	0.01	0.11	—	0.11	0.10	—	0.10	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42	0.35	3.79	6.97	0.01	0.08	—	0.08	0.07	—	0.07	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.69	1.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.66	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	231	231	< 0.005	< 0.005	0.18	231
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	214	214	< 0.005	0.03	0.11	224
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.52	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	214	214	< 0.005	< 0.005	< 0.005	214
Vendor	0.01	0.01	0.24	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	215	215	< 0.005	0.03	< 0.005	225
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.39	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	156
Vendor	0.01	< 0.005	0.17	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	153	153	< 0.005	0.02	0.03	160
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.4	25.4	< 0.005	< 0.005	0.01	26.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.65. Paving (2040) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.49	5.27	9.75	0.01	0.11	—	0.11	0.10	—	0.10	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.49	5.27	9.75	0.01	0.11	—	0.11	0.10	—	0.10	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.35	3.78	6.98	0.01	0.08	—	0.08	0.07	—	0.07	—	1,082	1,082	0.04	0.01	—	1,086
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.69	1.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	179	179	0.01	< 0.005	—	180
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	229	229	< 0.005	< 0.005	0.15	230
Vendor	0.01	0.01	0.22	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	210	210	< 0.005	0.03	0.09	219
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	213	213	< 0.005	< 0.005	< 0.005	213
Vendor	0.01	0.01	0.24	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	210	210	< 0.005	0.03	< 0.005	219
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.38	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	155
Vendor	0.01	< 0.005	0.17	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	150	150	< 0.005	0.02	0.03	157
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.6	25.6	< 0.005	< 0.005	0.01	25.7
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.9	24.9	< 0.005	< 0.005	< 0.005	26.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.66. Paving (2040) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.49	5.27	9.75	0.01	0.11	—	0.11	0.10	—	0.10	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.49	5.27	9.75	0.01	0.11	—	0.11	0.10	—	0.10	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.35	3.78	6.98	0.01	0.08	—	0.08	0.07	—	0.07	—	1,082	1,082	0.04	0.01	—	1,086
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.69	1.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	179	179	0.01	< 0.005	—	180
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	229	229	< 0.005	< 0.005	0.15	230
Vendor	0.01	0.01	0.22	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	210	210	< 0.005	0.03	0.09	219
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	213	213	< 0.005	< 0.005	< 0.005	213
Vendor	0.01	0.01	0.24	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	210	210	< 0.005	0.03	< 0.005	219
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.38	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	155
Vendor	0.01	< 0.005	0.17	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	150	150	< 0.005	0.02	0.03	157
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.6	25.6	< 0.005	< 0.005	0.01	25.7
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.9	24.9	< 0.005	< 0.005	< 0.005	26.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.67. Paving (2041) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57	0.48	5.20	9.74	0.01	0.10	—	0.10	0.09	—	0.09	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57	0.48	5.20	9.74	0.01	0.10	—	0.10	0.09	—	0.09	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.34	3.72	6.96	0.01	0.07	—	0.07	0.07	—	0.07	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.68	1.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.62	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	228	228	< 0.005	< 0.005	0.13	228
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	206	206	< 0.005	0.03	0.07	215
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.50	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	211	211	< 0.005	< 0.005	< 0.005	212
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	206	206	< 0.005	0.03	< 0.005	215
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.37	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	154	154	< 0.005	< 0.005	0.04	154
Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	147	147	< 0.005	0.02	0.02	154
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.4	25.4	< 0.005	< 0.005	0.01	25.5
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.3	24.3	< 0.005	< 0.005	< 0.005	25.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.68. Paving (2041) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57	0.48	5.20	9.74	0.01	0.10	—	0.10	0.09	—	0.09	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57	0.48	5.20	9.74	0.01	0.10	—	0.10	0.09	—	0.09	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.34	3.72	6.96	0.01	0.07	—	0.07	0.07	—	0.07	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.68	1.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.62	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	228	228	< 0.005	< 0.005	0.13	228
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	206	206	< 0.005	0.03	0.07	215
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.50	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	211	211	< 0.005	< 0.005	< 0.005	212
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	206	206	< 0.005	0.03	< 0.005	215
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.37	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	154	154	< 0.005	< 0.005	0.04	154
Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	147	147	< 0.005	0.02	0.02	154
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.4	25.4	< 0.005	< 0.005	0.01	25.5
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.3	24.3	< 0.005	< 0.005	< 0.005	25.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.69. Paving (2042) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	5.16	9.73	0.01	0.10	—	0.10	0.09	—	0.09	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	5.16	9.73	0.01	0.10	—	0.10	0.09	—	0.09	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	0.34	3.68	6.95	0.01	0.07	—	0.07	0.06	—	0.06	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.67	1.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.11	227
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	202	202	< 0.005	0.03	0.06	211
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.49	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	210	210	< 0.005	< 0.005	< 0.005	211
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	202	202	< 0.005	0.03	< 0.005	212
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.36	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	153	153	< 0.005	< 0.005	0.03	153
Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	144	144	< 0.005	0.02	0.02	151
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.3	25.3	< 0.005	< 0.005	0.01	25.4
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.9	23.9	< 0.005	< 0.005	< 0.005	25.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.70. Paving (2042) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	5.16	9.73	0.01	0.10	—	0.10	0.09	—	0.09	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	5.16	9.73	0.01	0.10	—	0.10	0.09	—	0.09	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	0.34	3.68	6.95	0.01	0.07	—	0.07	0.06	—	0.06	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.67	1.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.11	227
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	202	202	< 0.005	0.03	0.06	211
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.49	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	210	210	< 0.005	< 0.005	< 0.005	211
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	202	202	< 0.005	0.03	< 0.005	212
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.36	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	153	153	< 0.005	< 0.005	0.03	153
Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	144	144	< 0.005	0.02	0.02	151
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.3	25.3	< 0.005	< 0.005	0.01	25.4
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.9	23.9	< 0.005	< 0.005	< 0.005	25.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.71. Paving (2043) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	5.12	9.72	0.01	0.09	—	0.09	0.08	—	0.08	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	5.12	9.72	0.01	0.09	—	0.09	0.08	—	0.08	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	0.33	3.66	6.95	0.01	0.06	—	0.06	0.06	—	0.06	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.67	1.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.60	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	226	226	< 0.005	< 0.005	0.09	226
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	199	199	< 0.005	0.03	0.05	208
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.48	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	210
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	199	199	< 0.005	0.03	< 0.005	208
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.03	152
Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	142	142	< 0.005	0.02	0.01	149
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.5	23.5	< 0.005	< 0.005	< 0.005	24.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.72. Paving (2043) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	5.12	9.72	0.01	0.09	—	0.09	0.08	—	0.08	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	5.12	9.72	0.01	0.09	—	0.09	0.08	—	0.08	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	0.33	3.66	6.95	0.01	0.06	—	0.06	0.06	—	0.06	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.67	1.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.60	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	226	226	< 0.005	< 0.005	0.09	226
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	199	199	< 0.005	0.03	0.05	208
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.48	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	210
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	199	199	< 0.005	0.03	< 0.005	208
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.03	152
Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	142	142	< 0.005	0.02	0.01	149
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.5	23.5	< 0.005	< 0.005	< 0.005	24.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.73. Paving (2044) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	0.46	5.11	9.72	0.01	0.09	—	0.09	0.08	—	0.08	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	0.46	5.11	9.72	0.01	0.09	—	0.09	0.08	—	0.08	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.39	0.33	3.66	6.96	0.01	0.06	—	0.06	0.06	—	0.06	—	1,082	1,082	0.04	0.01	—	1,086
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.67	1.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	179	179	0.01	< 0.005	—	180
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	225	225	< 0.005	< 0.005	0.08	225
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	196	196	< 0.005	0.03	0.04	205
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	209
Vendor	0.01	0.01	0.23	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	196	196	< 0.005	0.03	< 0.005	205
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.02	152
Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	141	141	< 0.005	0.02	0.01	147
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.3	23.3	< 0.005	< 0.005	< 0.005	24.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.74. Paving (2044) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	0.46	5.11	9.72	0.01	0.09	—	0.09	0.08	—	0.08	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	0.46	5.11	9.72	0.01	0.09	—	0.09	0.08	—	0.08	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.39	0.33	3.66	6.96	0.01	0.06	—	0.06	0.06	—	0.06	—	1,082	1,082	0.04	0.01	—	1,086
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.67	1.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	179	179	0.01	< 0.005	—	180
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	225	225	< 0.005	< 0.005	0.08	225
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	196	196	< 0.005	0.03	0.04	205
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	209
Vendor	0.01	0.01	0.23	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	196	196	< 0.005	0.03	< 0.005	205
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.02	152
Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	141	141	< 0.005	0.02	0.01	147
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.3	23.3	< 0.005	< 0.005	< 0.005	24.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.75. Paving (2045) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.45	5.07	9.71	0.01	0.08	—	0.08	0.07	—	0.07	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.45	5.07	9.71	0.01	0.08	—	0.08	0.07	—	0.07	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.38	0.32	3.62	6.94	0.01	0.05	—	0.05	0.05	—	0.05	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.66	1.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.07	225
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	194	194	< 0.005	0.03	0.03	202
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	208	208	< 0.005	< 0.005	< 0.005	208
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	194	194	< 0.005	0.03	< 0.005	203
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	138	138	< 0.005	0.02	0.01	145
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.0	25.0	< 0.005	< 0.005	< 0.005	25.1
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.9	22.9	< 0.005	< 0.005	< 0.005	23.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.76. Paving (2045) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.45	5.07	9.71	0.01	0.08	—	0.08	0.07	—	0.07	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.45	5.07	9.71	0.01	0.08	—	0.08	0.07	—	0.07	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.38	0.32	3.62	6.94	0.01	0.05	—	0.05	0.05	—	0.05	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.66	1.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.07	225
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	194	194	< 0.005	0.03	0.03	202
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	208	208	< 0.005	< 0.005	< 0.005	208
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	194	194	< 0.005	0.03	< 0.005	203
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	138	138	< 0.005	0.02	0.01	145
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.0	25.0	< 0.005	< 0.005	< 0.005	25.1
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.9	22.9	< 0.005	< 0.005	< 0.005	23.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.77. Paving (2046) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	0.45	5.02	9.71	0.01	0.07	—	0.07	0.07	—	0.07	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	0.45	5.02	9.71	0.01	0.07	—	0.07	0.07	—	0.07	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.38	0.32	3.59	6.93	0.01	0.05	—	0.05	0.05	—	0.05	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.65	1.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.06	224
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	192	192	< 0.005	0.03	0.02	200
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	208
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	192	192	< 0.005	0.03	< 0.005	200
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.01	< 0.005	0.15	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	137	137	< 0.005	0.02	0.01	143
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.7	22.7	< 0.005	< 0.005	< 0.005	23.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.78. Paving (2046) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	0.45	5.02	9.71	0.01	0.07	—	0.07	0.07	—	0.07	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	0.45	5.02	9.71	0.01	0.07	—	0.07	0.07	—	0.07	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.38	0.32	3.59	6.93	0.01	0.05	—	0.05	0.05	—	0.05	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.65	1.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.06	224
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	192	192	< 0.005	0.03	0.02	200
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	208
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	192	192	< 0.005	0.03	< 0.005	200
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.01	< 0.005	0.15	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	137	137	< 0.005	0.02	0.01	143
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.7	22.7	< 0.005	< 0.005	< 0.005	23.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.79. Paving (2047) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	0.44	5.00	9.71	0.01	0.07	—	0.07	0.07	—	0.07	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	0.44	5.00	9.71	0.01	0.07	—	0.07	0.07	—	0.07	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.31	3.47	6.72	0.01	0.05	—	0.05	0.05	—	0.05	—	1,047	1,047	0.04	0.01	—	1,050
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.63	1.23	< 0.005	0.01	—	0.01	0.01	—	0.01	—	173	173	0.01	< 0.005	—	174
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.05	223
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	190	190	< 0.005	0.03	0.02	198
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	190	190	< 0.005	0.03	< 0.005	199
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.33	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	146	146	< 0.005	< 0.005	0.01	146
Vendor	0.01	< 0.005	0.15	0.06	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	132	132	< 0.005	0.02	0.01	138
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.1	24.1	< 0.005	< 0.005	< 0.005	24.2
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	21.8	21.8	< 0.005	< 0.005	< 0.005	22.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.80. Paving (2047) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	0.44	5.00	9.71	0.01	0.07	—	0.07	0.07	—	0.07	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	0.44	5.00	9.71	0.01	0.07	—	0.07	0.07	—	0.07	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.31	3.47	6.72	0.01	0.05	—	0.05	0.05	—	0.05	—	1,047	1,047	0.04	0.01	—	1,050
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.63	1.23	< 0.005	0.01	—	0.01	0.01	—	0.01	—	173	173	0.01	< 0.005	—	174
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.05	223
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	190	190	< 0.005	0.03	0.02	198
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	190	190	< 0.005	0.03	< 0.005	199
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.33	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	146	146	< 0.005	< 0.005	0.01	146
Vendor	0.01	< 0.005	0.15	0.06	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	132	132	< 0.005	0.02	0.01	138
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.1	24.1	< 0.005	< 0.005	< 0.005	24.2
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	21.8	21.8	< 0.005	< 0.005	< 0.005	22.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.81. Architectural Coating (2038) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.77	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	94.6	94.6	< 0.005	< 0.005	—	94.9
Architectural Coatings	1.99	1.99	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.7	15.7	< 0.005	< 0.005	—	15.7
Architectural Coatings	0.36	0.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.68	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	232	232	< 0.005	< 0.005	0.21	233
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	219	219	< 0.005	0.03	0.14	230
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.54	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	216	216	< 0.005	< 0.005	0.01	216
Vendor	0.01	0.01	0.25	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	220	220	< 0.005	0.03	< 0.005	230
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.40	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.06	156
Vendor	0.01	< 0.005	0.17	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	156	156	< 0.005	0.02	0.04	163
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.8	25.8	< 0.005	< 0.005	0.01	26.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.82. Architectural Coating (2038) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.11	0.09	0.75	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.77	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	94.6	94.6	< 0.005	< 0.005	—	94.9
Architectural Coatings	1.99	1.99	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.7	15.7	< 0.005	< 0.005	—	15.7

Architect Coatings	0.36	0.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.68	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	232	232	< 0.005	< 0.005	0.21	233
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	219	219	< 0.005	0.03	0.14	230
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.54	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	216	216	< 0.005	< 0.005	0.01	216
Vendor	0.01	0.01	0.25	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	220	220	< 0.005	0.03	< 0.005	230
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.40	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.06	156
Vendor	0.01	< 0.005	0.17	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	156	156	< 0.005	0.02	0.04	163
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.8	25.8	< 0.005	< 0.005	0.01	26.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.83. Architectural Coating (2039) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	2.00	2.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.37	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.66	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	231	231	< 0.005	< 0.005	0.18	231
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	214	214	< 0.005	0.03	0.11	224
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.52	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	214	214	< 0.005	< 0.005	< 0.005	214
Vendor	0.01	0.01	0.24	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	215	215	< 0.005	0.03	< 0.005	225
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.39	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	156
Vendor	0.01	< 0.005	0.17	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	153	153	< 0.005	0.02	0.03	160
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.4	25.4	< 0.005	< 0.005	0.01	26.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.84. Architectural Coating (2039) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7

Architect Coatings	2.00	2.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.37	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.66	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	231	231	< 0.005	< 0.005	0.18	231
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	214	214	< 0.005	0.03	0.11	224
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.52	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	214	214	< 0.005	< 0.005	< 0.005	214
Vendor	0.01	0.01	0.24	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	215	215	< 0.005	0.03	< 0.005	225
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.39	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	156
Vendor	0.01	< 0.005	0.17	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	153	153	< 0.005	0.02	0.03	160
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.4	25.4	< 0.005	< 0.005	0.01	26.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.85. Architectural Coating (2040) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.6	95.6	< 0.005	< 0.005	—	96.0
Architectural Coatings	2.01	2.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.9
Architectural Coatings	0.37	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	229	229	< 0.005	< 0.005	0.15	230
Vendor	0.01	0.01	0.22	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	210	210	< 0.005	0.03	0.09	219
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	213	213	< 0.005	< 0.005	< 0.005	213
Vendor	0.01	0.01	0.24	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	210	210	< 0.005	0.03	< 0.005	219

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.38	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	155
Vendor	0.01	< 0.005	0.17	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	150	150	< 0.005	0.02	0.03	157
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.6	25.6	< 0.005	< 0.005	0.01	25.7
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.9	24.9	< 0.005	< 0.005	< 0.005	26.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.86. Architectural Coating (2040) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.6	95.6	< 0.005	< 0.005	—	96.0
Architectural Coatings	2.01	2.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.9
Architectural Coatings	0.37	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	229	229	< 0.005	< 0.005	0.15	230

Vendor	0.01	0.01	0.22	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	210	210	< 0.005	0.03	0.09	219
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	213	213	< 0.005	< 0.005	< 0.005	213
Vendor	0.01	0.01	0.24	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	210	210	< 0.005	0.03	< 0.005	219
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.38	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	155
Vendor	0.01	< 0.005	0.17	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	150	150	< 0.005	0.02	0.03	157
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.6	25.6	< 0.005	< 0.005	0.01	25.7
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.9	24.9	< 0.005	< 0.005	< 0.005	26.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.87. Architectural Coating (2041) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134

Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	2.00	2.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8

Architectural Coating	0.37	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.62	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	228	228	< 0.005	< 0.005	0.13	228
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	206	206	< 0.005	0.03	0.07	215
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.50	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	211	211	< 0.005	< 0.005	< 0.005	212
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	206	206	< 0.005	0.03	< 0.005	215
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.37	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	154	154	< 0.005	< 0.005	0.04	154
Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	147	147	< 0.005	0.02	0.02	154
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.4	25.4	< 0.005	< 0.005	0.01	25.5
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.3	24.3	< 0.005	< 0.005	< 0.005	25.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.88. Architectural Coating (2041) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	2.00	2.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.37	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.62	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	228	228	< 0.005	< 0.005	0.13	228
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	206	206	< 0.005	0.03	0.07	215
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.50	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	211	211	< 0.005	< 0.005	< 0.005	212
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	206	206	< 0.005	0.03	< 0.005	215
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.37	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	154	154	< 0.005	< 0.005	0.04	154
Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	147	147	< 0.005	0.02	0.02	154
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.4	25.4	< 0.005	< 0.005	0.01	25.5

Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.3	24.3	< 0.005	< 0.005	< 0.005	25.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.89. Architectural Coating (2042) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	2.00	2.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.37	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.11	227
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	202	202	< 0.005	0.03	0.06	211
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.49	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	210	210	< 0.005	< 0.005	< 0.005	211
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	202	202	< 0.005	0.03	< 0.005	212
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.36	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	153	153	< 0.005	< 0.005	0.03	153

Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	144	144	< 0.005	0.02	0.02	151
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.3	25.3	< 0.005	< 0.005	0.01	25.4
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.9	23.9	< 0.005	< 0.005	< 0.005	25.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.90. Architectural Coating (2042) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134

Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	2.00	2.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.37	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.11	227
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	202	202	< 0.005	0.03	0.06	211
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.49	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	210	210	< 0.005	< 0.005	< 0.005	211
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	202	202	< 0.005	0.03	< 0.005	212
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.36	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	153	153	< 0.005	< 0.005	0.03	153
Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	144	144	< 0.005	0.02	0.02	151
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.3	25.3	< 0.005	< 0.005	0.01	25.4
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.9	23.9	< 0.005	< 0.005	< 0.005	25.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.91. Architectural Coating (2043) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	2.00	2.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.37	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.60	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	226	226	< 0.005	< 0.005	0.09	226
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	199	199	< 0.005	0.03	0.05	208
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.48	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	210
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	199	199	< 0.005	0.03	< 0.005	208
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.03	152
Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	142	142	< 0.005	0.02	0.01	149
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.5	23.5	< 0.005	< 0.005	< 0.005	24.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.92. Architectural Coating (2043) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	2.00	2.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8

Architect Coatings	0.37	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.60	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	226	226	< 0.005	< 0.005	0.09	226
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	199	199	< 0.005	0.03	0.05	208
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.48	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	210
Vendor	0.01	0.01	0.23	0.10	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	199	199	< 0.005	0.03	< 0.005	208
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.03	152
Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	142	142	< 0.005	0.02	0.01	149
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.5	23.5	< 0.005	< 0.005	< 0.005	24.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.93. Architectural Coating (2044) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.6	95.6	< 0.005	< 0.005	—	96.0
Architectural Coatings	2.01	2.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.9
Architectural Coatings	0.37	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	225	225	< 0.005	< 0.005	0.08	225
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	196	196	< 0.005	0.03	0.04	205
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	209
Vendor	0.01	0.01	0.23	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	196	196	< 0.005	0.03	< 0.005	205
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.02	152
Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	141	141	< 0.005	0.02	0.01	147
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.3	23.3	< 0.005	< 0.005	< 0.005	24.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.94. Architectural Coating (2044) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.6	95.6	< 0.005	< 0.005	—	96.0

Architect Coatings	2.01	2.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.9
Architectural Coatings	0.37	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	225	225	< 0.005	< 0.005	0.08	225
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	196	196	< 0.005	0.03	0.04	205
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	209
Vendor	0.01	0.01	0.23	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	196	196	< 0.005	0.03	< 0.005	205
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.02	152
Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	141	141	< 0.005	0.02	0.01	147
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.3	23.3	< 0.005	< 0.005	< 0.005	24.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.95. Architectural Coating (2045) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	2.00	2.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.37	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.07	225
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	194	194	< 0.005	0.03	0.03	202
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	208	208	< 0.005	< 0.005	< 0.005	208
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	194	194	< 0.005	0.03	< 0.005	203

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	138	138	< 0.005	0.02	0.01	145
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.0	25.0	< 0.005	< 0.005	< 0.005	25.1
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.9	22.9	< 0.005	< 0.005	< 0.005	23.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.96. Architectural Coating (2045) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	2.00	2.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.37	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.07	225

Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	194	194	< 0.005	0.03	0.03	202
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	208	208	< 0.005	< 0.005	< 0.005	208
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	194	194	< 0.005	0.03	< 0.005	203
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.01	< 0.005	0.16	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	138	138	< 0.005	0.02	0.01	145
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.0	25.0	< 0.005	< 0.005	< 0.005	25.1
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.9	22.9	< 0.005	< 0.005	< 0.005	23.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.97. Architectural Coating (2046) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134

Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	2.00	2.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8

Architectural Coating	0.37	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.06	224
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	192	192	< 0.005	0.03	0.02	200
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	208
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	192	192	< 0.005	0.03	< 0.005	200
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.01	< 0.005	0.15	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	137	137	< 0.005	0.02	0.01	143
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.7	22.7	< 0.005	< 0.005	< 0.005	23.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.98. Architectural Coating (2046) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	2.00	2.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.37	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.06	224
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	192	192	< 0.005	0.03	0.02	200
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	208
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	192	192	< 0.005	0.03	< 0.005	200
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.01	< 0.005	0.15	0.07	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	137	137	< 0.005	0.02	0.01	143
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0

Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.7	22.7	< 0.005	< 0.005	< 0.005	23.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.99. Architectural Coating (2047) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.07	0.06	0.51	0.76	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	92.5	92.5	< 0.005	< 0.005	—	92.8
Architectural Coatings	1.94	1.94	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.3	15.3	< 0.005	< 0.005	—	15.4
Architectural Coatings	0.35	0.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.05	223
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	190	190	< 0.005	0.03	0.02	198
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	190	190	< 0.005	0.03	< 0.005	199
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.33	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	146	146	< 0.005	< 0.005	0.01	146

Vendor	0.01	< 0.005	0.15	0.06	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	132	132	< 0.005	0.02	0.01	138
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.1	24.1	< 0.005	< 0.005	< 0.005	24.2
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	21.8	21.8	< 0.005	< 0.005	< 0.005	22.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.100. Architectural Coating (2047) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134

Architectural Coatings	2.81	2.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.51	0.76	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	92.5	92.5	< 0.005	< 0.005	—	92.8
Architectural Coatings	1.94	1.94	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.3	15.3	< 0.005	< 0.005	—	15.4
Architectural Coatings	0.35	0.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.05	223
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	190	190	< 0.005	0.03	0.02	198
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	190	190	< 0.005	0.03	< 0.005	199
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.33	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	146	146	< 0.005	< 0.005	0.01	146
Vendor	0.01	< 0.005	0.15	0.06	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	132	132	< 0.005	0.02	0.01	138
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.1	24.1	< 0.005	< 0.005	< 0.005	24.2
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	21.8	21.8	< 0.005	< 0.005	< 0.005	22.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.50	0.47	0.33	3.95	0.01	< 0.005	1.26	1.26	< 0.005	0.32	0.32	—	1,164	1,164	0.04	0.05	0.20	1,179

Apartments Mid Rise	1.42	1.32	0.94	11.2	0.03	0.01	3.55	3.57	0.01	0.90	0.91	—	3,289	3,289	0.10	0.13	0.56	3,331
Total	1.92	1.78	1.27	15.1	0.04	0.02	4.81	4.83	0.02	1.22	1.24	—	4,453	4,453	0.13	0.17	0.76	4,509
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.49	0.45	0.36	3.53	0.01	< 0.005	1.26	1.26	< 0.005	0.32	0.32	—	1,096	1,096	0.04	0.05	0.01	1,111
Apartments Mid Rise	1.38	1.28	1.03	9.98	0.03	0.01	3.55	3.57	0.01	0.90	0.91	—	3,098	3,098	0.11	0.14	0.01	3,141
Total	1.87	1.73	1.39	13.5	0.04	0.02	4.81	4.83	0.02	1.22	1.24	—	4,194	4,194	0.14	0.19	0.02	4,253
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.09	0.08	0.06	0.65	< 0.005	< 0.005	0.21	0.21	< 0.005	0.05	0.05	—	184	184	0.01	0.01	0.01	186
Apartments Mid Rise	0.25	0.23	0.18	1.84	0.01	< 0.005	0.60	0.60	< 0.005	0.15	0.16	—	520	520	0.02	0.02	0.04	527
Total	0.34	0.31	0.25	2.49	0.01	< 0.005	0.81	0.82	< 0.005	0.21	0.21	—	703	703	0.02	0.03	0.05	713

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.50	0.47	0.33	3.95	0.01	< 0.005	1.26	1.26	< 0.005	0.32	0.32	—	1,164	1,164	0.04	0.05	0.20	1,179

Apartments Mid Rise	1.42	1.32	0.94	11.2	0.03	0.01	3.55	3.57	0.01	0.90	0.91	—	3,289	3,289	0.10	0.13	0.56	3,331
Total	1.92	1.78	1.27	15.1	0.04	0.02	4.81	4.83	0.02	1.22	1.24	—	4,453	4,453	0.13	0.17	0.76	4,509
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.49	0.45	0.36	3.53	0.01	< 0.005	1.26	1.26	< 0.005	0.32	0.32	—	1,096	1,096	0.04	0.05	0.01	1,111
Apartments Mid Rise	1.38	1.28	1.03	9.98	0.03	0.01	3.55	3.57	0.01	0.90	0.91	—	3,098	3,098	0.11	0.14	0.01	3,141
Total	1.87	1.73	1.39	13.5	0.04	0.02	4.81	4.83	0.02	1.22	1.24	—	4,194	4,194	0.14	0.19	0.02	4,253
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.09	0.08	0.06	0.65	< 0.005	< 0.005	0.21	0.21	< 0.005	0.05	0.05	—	184	184	0.01	0.01	0.01	186
Apartments Mid Rise	0.25	0.23	0.18	1.84	0.01	< 0.005	0.60	0.60	< 0.005	0.15	0.16	—	520	520	0.02	0.02	0.04	527
Total	0.34	0.31	0.25	2.49	0.01	< 0.005	0.81	0.82	< 0.005	0.21	0.21	—	703	703	0.02	0.03	0.05	713

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	494	494	0.04	< 0.005	—	496

Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	493	493	0.04	< 0.005	—	496
Total	—	—	—	—	—	—	—	—	—	—	—	—	987	987	0.07	0.01	—	992
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	494	494	0.04	< 0.005	—	496
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	493	493	0.04	< 0.005	—	496
Total	—	—	—	—	—	—	—	—	—	—	—	—	987	987	0.07	0.01	—	992
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	81.8	81.8	0.01	< 0.005	—	82.2
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	81.7	81.7	0.01	< 0.005	—	82.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	163	163	0.01	< 0.005	—	164

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	499	499	0.04	< 0.005	—	501
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	495	495	0.04	< 0.005	—	497

Total	—	—	—	—	—	—	—	—	—	—	—	—	994	994	0.07	0.01	—	998
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	499	499	0.04	< 0.005	—	501
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	495	495	0.04	< 0.005	—	497
Total	—	—	—	—	—	—	—	—	—	—	—	—	994	994	0.07	0.01	—	998
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	82.6	82.6	0.01	< 0.005	—	83.0
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	82.0	82.0	0.01	< 0.005	—	82.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	165	165	0.01	< 0.005	—	165

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.09	0.05	0.81	0.34	0.01	0.07	—	0.07	0.07	—	0.07	—	1,024	1,024	0.09	< 0.005	—	1,027
Apartments Mid Rise	0.04	0.02	0.30	0.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	385	385	0.03	< 0.005	—	386
Total	0.13	0.06	1.11	0.47	0.01	0.09	—	0.09	0.09	—	0.09	—	1,409	1,409	0.12	< 0.005	—	1,413

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.09	0.05	0.81	0.34	0.01	0.07	—	0.07	0.07	—	0.07	—	1,024	1,024	0.09	< 0.005	—	1,027
Apartments Mid Rise	0.04	0.02	0.30	0.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	385	385	0.03	< 0.005	—	386
Total	0.13	0.06	1.11	0.47	0.01	0.09	—	0.09	0.09	—	0.09	—	1,409	1,409	0.12	< 0.005	—	1,413
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.02	0.01	0.15	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	170	170	0.02	< 0.005	—	170
Apartments Mid Rise	0.01	< 0.005	0.06	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	63.7	63.7	0.01	< 0.005	—	63.9
Total	0.02	0.01	0.20	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	233	233	0.02	< 0.005	—	234

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.09	0.05	0.79	0.34	0.01	0.06	—	0.06	0.06	—	0.06	—	1,008	1,008	0.09	< 0.005	—	1,011
Apartments Mid Rise	0.04	0.02	0.30	0.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	382	382	0.03	< 0.005	—	383
Total	0.13	0.06	1.10	0.47	0.01	0.09	—	0.09	0.09	—	0.09	—	1,390	1,390	0.12	< 0.005	—	1,394

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.09	0.05	0.79	0.34	0.01	0.06	—	0.06	0.06	—	0.06	—	1,008	1,008	0.09	< 0.005	—	1,011
Apartments Mid Rise	0.04	0.02	0.30	0.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	382	382	0.03	< 0.005	—	383
Total	0.13	0.06	1.10	0.47	0.01	0.09	—	0.09	0.09	—	0.09	—	1,390	1,390	0.12	< 0.005	—	1,394
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.02	0.01	0.14	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	167	167	0.01	< 0.005	—	167
Apartments Mid Rise	0.01	< 0.005	0.05	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	63.2	63.2	0.01	< 0.005	—	63.4
Total	0.02	0.01	0.20	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	230	230	0.02	< 0.005	—	231

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	4.99	4.99	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.40	0.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape Equipment	0.94	0.89	0.09	10.3	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.5	27.5	< 0.005	< 0.005	—	27.6
Total	6.33	6.28	0.09	10.3	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.5	27.5	< 0.005	< 0.005	—	27.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	4.99	4.99	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.40	0.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	5.39	5.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.91	0.91	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.07	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.08	0.08	0.01	0.93	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.24	2.24	< 0.005	< 0.005	—	2.25
Total	1.07	1.06	0.01	0.93	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.24	2.24	< 0.005	< 0.005	—	2.25

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consum Products	4.99	4.99	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.40	0.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.94	0.89	0.09	10.3	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.5	27.5	< 0.005	< 0.005	—	27.6
Total	6.33	6.28	0.09	10.3	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.5	27.5	< 0.005	< 0.005	—	27.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	4.99	4.99	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.40	0.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	5.39	5.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.91	0.91	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.07	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.08	0.08	0.01	0.93	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.24	2.24	< 0.005	< 0.005	—	2.25
Total	1.07	1.06	0.01	0.93	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.24	2.24	< 0.005	< 0.005	—	2.25

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	16.5	277	294	1.71	0.04	—	349
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	1.34	3.74	5.09	0.14	< 0.005	—	9.52
Total	—	—	—	—	—	—	—	—	—	—	—	17.8	281	299	1.85	0.05	—	358
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	16.5	277	294	1.71	0.04	—	349
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	1.34	3.74	5.09	0.14	< 0.005	—	9.52
Total	—	—	—	—	—	—	—	—	—	—	—	17.8	281	299	1.85	0.05	—	358
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	2.73	45.9	48.6	0.28	0.01	—	57.8
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	0.22	0.62	0.84	0.02	< 0.005	—	1.58
Total	—	—	—	—	—	—	—	—	—	—	—	2.95	46.5	49.4	0.31	0.01	—	59.3

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	16.5	277	294	1.71	0.04	—	349
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	1.34	3.74	5.09	0.14	< 0.005	—	9.52
Total	—	—	—	—	—	—	—	—	—	—	—	17.8	281	299	1.85	0.05	—	358
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	16.5	277	294	1.71	0.04	—	349
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	1.34	3.74	5.09	0.14	< 0.005	—	9.52
Total	—	—	—	—	—	—	—	—	—	—	—	17.8	281	299	1.85	0.05	—	358
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	2.73	45.9	48.6	0.28	0.01	—	57.8
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	0.22	0.62	0.84	0.02	< 0.005	—	1.58
Total	—	—	—	—	—	—	—	—	—	—	—	2.95	46.5	49.4	0.31	0.01	—	59.3

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	24.4	0.00	24.4	2.44	0.00	—	85.4
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	48.7	0.00	48.7	4.87	0.00	—	170
Total	—	—	—	—	—	—	—	—	—	—	—	73.1	0.00	73.1	7.31	0.00	—	256
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	24.4	0.00	24.4	2.44	0.00	—	85.4
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	48.7	0.00	48.7	4.87	0.00	—	170
Total	—	—	—	—	—	—	—	—	—	—	—	73.1	0.00	73.1	7.31	0.00	—	256
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	4.04	0.00	4.04	0.40	0.00	—	14.1
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
Total	—	—	—	—	—	—	—	—	—	—	—	12.1	0.00	12.1	1.21	0.00	—	42.3

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	24.4	0.00	24.4	2.44	0.00	—	85.4
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	48.7	0.00	48.7	4.87	0.00	—	170
Total	—	—	—	—	—	—	—	—	—	—	—	73.1	0.00	73.1	7.31	0.00	—	256
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	24.4	0.00	24.4	2.44	0.00	—	85.4
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	48.7	0.00	48.7	4.87	0.00	—	170
Total	—	—	—	—	—	—	—	—	—	—	—	73.1	0.00	73.1	7.31	0.00	—	256
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	4.04	0.00	4.04	0.40	0.00	—	14.1
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
Total	—	—	—	—	—	—	—	—	—	—	—	12.1	0.00	12.1	1.21	0.00	—	42.3

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.84	0.84
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.83	0.83
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.67	1.67
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.84	0.84
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.83	0.83
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.67	1.67
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.14	0.14
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.14	0.14
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.28	0.28

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.84	0.84
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.83	0.83
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.67	1.67
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.84	0.84
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.83	0.83
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.67	1.67
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.14	0.14
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.14	0.14
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.28	0.28

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	1/4/2038	12/20/2047	5.00	2,600	—
Grading	Grading	1/4/2038	12/20/2047	5.00	2,600	—
Building Construction	Building Construction	1/4/2038	12/20/2047	5.00	2,600	—
Paving	Paving	1/4/2038	12/20/2047	5.00	2,600	—
Architectural Coating	Architectural Coating	1/4/2038	12/20/2047	5.00	2,600	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40

Site Preparation	Tractors/Loaders/Back	Diesel	Average	3.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20

Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	20.0	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	20.0	20.0	HHDT
Site Preparation	Onsite truck	1.00	1.00	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	20.0	20.0	HHDT
Grading	Onsite truck	1.00	1.00	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	100	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	30.0	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—

Paving	Worker	20.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	10.0	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	20.0	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	10.0	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	20.0	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	20.0	20.0	HHDT
Site Preparation	Onsite truck	1.00	1.00	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	20.0	20.0	HHDT
Grading	Onsite truck	1.00	1.00	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	100	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	30.0	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—

Paving	Worker	20.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	10.0	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	20.0	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	10.0	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	472,149	157,383	0.00	0.00	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	3,900	0.00	—

Grading	—	—	7,800	0.00	—
Paving	0.00	0.00	0.00	0.00	0.66

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Single Family Housing	0.66	0%
Apartments Mid Rise	—	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2038	0.00	453	0.03	< 0.005
2039	0.00	453	0.03	< 0.005
2040	0.00	453	0.03	< 0.005
2041	0.00	453	0.03	< 0.005
2042	0.00	453	0.03	< 0.005
2043	0.00	453	0.03	< 0.005
2044	0.00	453	0.03	< 0.005
2045	0.00	453	0.03	< 0.005
2046	0.00	453	0.03	< 0.005
2047	0.00	453	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	230	230	230	83,950	1,777	1,777	1,777	648,750
Apartments Mid Rise	650	650	650	237,250	5,023	5,023	5,023	1,833,425

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	230	230	230	83,950	1,777	1,777	1,777	648,750
Apartments Mid Rise	650	650	650	237,250	5,023	5,023	5,023	1,833,425

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
472149	157,383	0.00	0.00	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00

Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	397,976	453	0.0330	0.0040	3,195,620
Apartments Mid Rise	397,303	453	0.0330	0.0040	1,200,968

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	401,764	453	0.0330	0.0040	3,146,424
Apartments Mid Rise	398,786	453	0.0330	0.0040	1,191,547

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	8,596,774	43,293,712
Apartments Mid Rise	701,024	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	8,596,774	43,293,712
Apartments Mid Rise	701,024	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	45.3	—
Apartments Mid Rise	90.4	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	45.3	—
Apartments Mid Rise	90.4	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	5.68	annual days of extreme heat
Extreme Precipitation	5.50	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	45.0
AQ-PM	66.1
AQ-DPM	96.2
Drinking Water	52.7
Lead Risk Housing	24.4
Pesticides	0.00
Toxic Releases	79.2
Traffic	68.7
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	25.1
Haz Waste Facilities/Generators	44.7
Impaired Water Bodies	66.7
Solid Waste	42.3
Sensitive Population	—
Asthma	35.8
Cardio-vascular	47.2
Low Birth Weights	7.17
Socioeconomic Factor Indicators	—

Education	20.9
Housing	50.7
Linguistic	30.0
Poverty	42.6
Unemployment	45.8

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	66.05928397
Employed	97.78005903
Median HI	50.49403311
Education	—
Bachelor's or higher	85.98742461
High school enrollment	100
Preschool enrollment	78.71166431
Transportation	—
Auto Access	15.29577826
Active commuting	83.42101886
Social	—
2-parent households	0.936738098
Voting	40.18991403
Neighborhood	—
Alcohol availability	4.516874118
Park access	81.35506224
Retail density	58.14192224
Supermarket access	94.25125112

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Tree canopy	21.14718337
Housing	—
Homeownership	0.590273322
Housing habitability	26.43397921
Low-inc homeowner severe housing cost burden	99.12742205
Low-inc renter severe housing cost burden	68.71551392
Uncrowded housing	10.40677531
Health Outcomes	—
Insured adults	54.27948159
Arthritis	98.1
Asthma ER Admissions	59.4
High Blood Pressure	96.7
Cancer (excluding skin)	89.7
Asthma	83.3
Coronary Heart Disease	97.4
Chronic Obstructive Pulmonary Disease	97.2
Diagnosed Diabetes	95.7
Life Expectancy at Birth	81.8
Cognitively Disabled	93.6
Physically Disabled	98.1
Heart Attack ER Admissions	34.3
Mental Health Not Good	76.1
Chronic Kidney Disease	95.6
Obesity	77.3
Pedestrian Injuries	94.6
Physical Health Not Good	92.3
Stroke	96.9
Health Risk Behaviors	—

Binge Drinking	6.6
Current Smoker	70.9
No Leisure Time for Physical Activity	88.3
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	19.0
Elderly	98.6
English Speaking	73.8
Foreign-born	76.3
Outdoor Workers	35.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	0.9
Traffic Density	60.1
Traffic Access	87.4
Other Indices	—
Hardship	35.5
Other Decision Support	—
2016 Voting	48.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	39.0
Healthy Places Index Score for Project Location (b)	60.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Characteristics: Project Details	Updated characteristics screen to match project specific characteristics
Characteristics: Utility Information	Using statewide average electricity defaults to better estimate emissions for project area
Construction: Construction Phases	Adjusted construction schedule to match project needs
Construction: Off-Road Equipment	Adjust construction equipment mix for project needs
Construction: Trips and VMT	updated construction trip to match project needs
Operations: Hearths	removed hearths
Operations: Water and Waste Water	Adjusted electric intensity factor for Maui
Operations: Vehicle Data	Adjusted traffic data based on TIAR

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Makena Mauka - Phase 3
Construction Start Date	1/6/2048
Operational Year	2050
Lead Agency	—
Land Use Scale	Plan/community
Analysis Level for Defaults	Statewide
Windspeed (m/s)	15.0
Precipitation (days)	113
Location	34.022579521235755, -118.40535118073069
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4454
EDFZ	16
Electric Utility	Statewide Average
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Single Family Housing	60.0	Dwelling Unit	19.5	117,000	702,771	—	178	single family homes

Apartments Mid Rise	121	Dwelling Unit	3.18	116,160	0.00	—	358	multifamily homes
High Turnover (Sit Down Restaurant)	48.0	1000sqft	1.10	48,000	0.00	—	—	a. Restaurant, Clubhouse, Kitchen, Locker Rooms, Fitness, Back of House

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Energy	E-12-A	Install Alternative Type of Water Heater in Place of Gas Storage Tank Heater in Residences
Energy	E-12-B	Install Electric Space Heater in Place of Natural Gas Heaters in Residences
Energy	E-13	Install Electric Ranges in Place of Gas Ranges

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	9.27	8.30	36.1	63.5	0.17	0.86	15.5	16.4	0.79	6.31	7.10	—	20,452	20,452	0.69	0.59	0.84	20,645
Mit.	9.27	8.30	36.1	63.5	0.17	0.86	15.5	16.4	0.79	6.31	7.10	—	20,452	20,452	0.69	0.59	0.84	20,645
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	9.24	8.29	36.2	62.4	0.17	0.86	15.5	16.4	0.79	6.31	7.10	—	20,309	20,309	0.69	0.59	0.02	20,503
Mit.	9.24	8.29	36.2	62.4	0.17	0.86	15.5	16.4	0.79	6.31	7.10	—	20,309	20,309	0.69	0.59	0.02	20,503
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.54	5.87	25.5	44.6	0.12	0.61	10.8	11.3	0.56	4.45	4.98	—	14,518	14,518	0.49	0.42	0.26	14,657
Mit.	6.54	5.87	25.5	44.6	0.12	0.61	10.8	11.3	0.56	4.45	4.98	—	14,518	14,518	0.49	0.42	0.26	14,657
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.19	1.07	4.65	8.13	0.02	0.11	1.96	2.07	0.10	0.81	0.91	—	2,404	2,404	0.08	0.07	0.04	2,427
Mit.	1.19	1.07	4.65	8.13	0.02	0.11	1.96	2.07	0.10	0.81	0.91	—	2,404	2,404	0.08	0.07	0.04	2,427
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	40.0	40.0	100	40.0	—	—	15.0	—	—	10.0	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—
Mit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2048	9.27	8.30	36.1	63.5	0.17	0.86	15.5	16.4	0.79	6.31	7.10	—	20,452	20,452	0.69	0.59	0.84	20,645
2049	9.17	8.23	34.6	63.3	0.17	0.81	15.5	16.3	0.75	6.31	7.06	—	20,439	20,439	0.69	0.59	0.72	20,632
2050	9.13	8.18	33.9	63.2	0.17	0.77	15.5	16.3	0.71	6.31	7.03	—	20,427	20,427	0.69	0.59	0.63	20,620
2051	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2052	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2053	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2054	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2055	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2056	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2057	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2048	9.24	8.29	36.2	62.4	0.17	0.86	15.5	16.4	0.79	6.31	7.10	—	20,309	20,309	0.69	0.59	0.02	20,503
2049	9.16	8.22	34.8	62.2	0.17	0.81	15.5	16.3	0.75	6.31	7.06	—	20,296	20,296	0.69	0.59	0.02	20,490
2050	9.10	8.17	34.0	62.1	0.17	0.77	15.5	16.3	0.71	6.31	7.03	—	20,285	20,285	0.69	0.59	0.02	20,479
2051	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2052	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2053	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2054	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2055	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2056	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2057	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2048	6.53	5.86	25.5	44.2	0.12	0.61	10.6	11.2	0.56	4.40	4.96	—	14,368	14,368	0.49	0.42	0.26	14,505
2049	6.54	5.87	24.8	44.6	0.12	0.58	10.8	11.3	0.53	4.45	4.98	—	14,518	14,518	0.49	0.42	0.22	14,657

2050	6.50	5.84	24.2	44.5	0.12	0.55	10.8	11.3	0.51	4.45	4.96	—	14,510	14,510	0.49	0.42	0.19	14,648
2051	2.31	2.31	—	—	—	—	10.4	10.4	—	4.38	4.38	—	0.00	0.00	0.00	0.00	—	0.00
2052	2.32	2.32	—	—	—	—	10.5	10.5	—	4.39	4.39	—	0.00	0.00	0.00	0.00	—	0.00
2053	2.31	2.31	—	—	—	—	10.4	10.4	—	4.38	4.38	—	0.00	0.00	0.00	0.00	—	0.00
2054	2.31	2.31	—	—	—	—	10.4	10.4	—	4.38	4.38	—	0.00	0.00	0.00	0.00	—	0.00
2055	2.31	2.31	—	—	—	—	10.4	10.4	—	4.38	4.38	—	0.00	0.00	0.00	0.00	—	0.00
2056	2.32	2.32	—	—	—	—	10.5	10.5	—	4.39	4.39	—	0.00	0.00	0.00	0.00	—	0.00
2057	2.25	2.25	—	—	—	—	10.1	10.1	—	4.26	4.26	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2048	1.19	1.07	4.65	8.06	0.02	0.11	1.94	2.05	0.10	0.80	0.91	—	2,379	2,379	0.08	0.07	0.04	2,402
2049	1.19	1.07	4.53	8.13	0.02	0.11	1.96	2.07	0.10	0.81	0.91	—	2,404	2,404	0.08	0.07	0.04	2,427
2050	1.19	1.06	4.42	8.11	0.02	0.10	1.96	2.06	0.09	0.81	0.91	—	2,402	2,402	0.08	0.07	0.03	2,425
2051	0.42	0.42	—	—	—	—	1.90	1.90	—	0.80	0.80	—	0.00	0.00	0.00	0.00	—	0.00
2052	0.42	0.42	—	—	—	—	1.91	1.91	—	0.80	0.80	—	0.00	0.00	0.00	0.00	—	0.00
2053	0.42	0.42	—	—	—	—	1.90	1.90	—	0.80	0.80	—	0.00	0.00	0.00	0.00	—	0.00
2054	0.42	0.42	—	—	—	—	1.90	1.90	—	0.80	0.80	—	0.00	0.00	0.00	0.00	—	0.00
2055	0.42	0.42	—	—	—	—	1.90	1.90	—	0.80	0.80	—	0.00	0.00	0.00	0.00	—	0.00
2056	0.42	0.42	—	—	—	—	1.91	1.91	—	0.80	0.80	—	0.00	0.00	0.00	0.00	—	0.00
2057	0.41	0.41	—	—	—	—	1.85	1.85	—	0.78	0.78	—	0.00	0.00	0.00	0.00	—	0.00

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2048	9.27	8.30	36.1	63.5	0.17	0.86	15.5	16.4	0.79	6.31	7.10	—	20,452	20,452	0.69	0.59	0.84	20,645
2049	9.17	8.23	34.6	63.3	0.17	0.81	15.5	16.3	0.75	6.31	7.06	—	20,439	20,439	0.69	0.59	0.72	20,632
2050	9.13	8.18	33.9	63.2	0.17	0.77	15.5	16.3	0.71	6.31	7.03	—	20,427	20,427	0.69	0.59	0.63	20,620

2051	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2052	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2053	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2054	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2055	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2056	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2057	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2048	9.24	8.29	36.2	62.4	0.17	0.86	15.5	16.4	0.79	6.31	7.10	—	20,309	20,309	0.69	0.59	0.02	20,503
2049	9.16	8.22	34.8	62.2	0.17	0.81	15.5	16.3	0.75	6.31	7.06	—	20,296	20,296	0.69	0.59	0.02	20,490
2050	9.10	8.17	34.0	62.1	0.17	0.77	15.5	16.3	0.71	6.31	7.03	—	20,285	20,285	0.69	0.59	0.02	20,479
2051	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2052	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2053	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2054	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2055	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2056	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
2057	3.23	3.23	—	—	—	—	15.1	15.1	—	6.21	6.21	—	0.00	0.00	0.00	0.00	—	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2048	6.53	5.86	25.5	44.2	0.12	0.61	10.6	11.2	0.56	4.40	4.96	—	14,368	14,368	0.49	0.42	0.26	14,505
2049	6.54	5.87	24.8	44.6	0.12	0.58	10.8	11.3	0.53	4.45	4.98	—	14,518	14,518	0.49	0.42	0.22	14,657
2050	6.50	5.84	24.2	44.5	0.12	0.55	10.8	11.3	0.51	4.45	4.96	—	14,510	14,510	0.49	0.42	0.19	14,648
2051	2.31	2.31	—	—	—	—	10.4	10.4	—	4.38	4.38	—	0.00	0.00	0.00	0.00	—	0.00
2052	2.32	2.32	—	—	—	—	10.5	10.5	—	4.39	4.39	—	0.00	0.00	0.00	0.00	—	0.00
2053	2.31	2.31	—	—	—	—	10.4	10.4	—	4.38	4.38	—	0.00	0.00	0.00	0.00	—	0.00
2054	2.31	2.31	—	—	—	—	10.4	10.4	—	4.38	4.38	—	0.00	0.00	0.00	0.00	—	0.00

2055	2.31	2.31	—	—	—	—	10.4	10.4	—	4.38	4.38	—	0.00	0.00	0.00	0.00	—	0.00
2056	2.32	2.32	—	—	—	—	10.5	10.5	—	4.39	4.39	—	0.00	0.00	0.00	0.00	—	0.00
2057	2.25	2.25	—	—	—	—	10.1	10.1	—	4.26	4.26	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2048	1.19	1.07	4.65	8.06	0.02	0.11	1.94	2.05	0.10	0.80	0.91	—	2,379	2,379	0.08	0.07	0.04	2,402
2049	1.19	1.07	4.53	8.13	0.02	0.11	1.96	2.07	0.10	0.81	0.91	—	2,404	2,404	0.08	0.07	0.04	2,427
2050	1.19	1.06	4.42	8.11	0.02	0.10	1.96	2.06	0.09	0.81	0.91	—	2,402	2,402	0.08	0.07	0.03	2,425
2051	0.42	0.42	—	—	—	—	1.90	1.90	—	0.80	0.80	—	0.00	0.00	0.00	0.00	—	0.00
2052	0.42	0.42	—	—	—	—	1.91	1.91	—	0.80	0.80	—	0.00	0.00	0.00	0.00	—	0.00
2053	0.42	0.42	—	—	—	—	1.90	1.90	—	0.80	0.80	—	0.00	0.00	0.00	0.00	—	0.00
2054	0.42	0.42	—	—	—	—	1.90	1.90	—	0.80	0.80	—	0.00	0.00	0.00	0.00	—	0.00
2055	0.42	0.42	—	—	—	—	1.90	1.90	—	0.80	0.80	—	0.00	0.00	0.00	0.00	—	0.00
2056	0.42	0.42	—	—	—	—	1.91	1.91	—	0.80	0.80	—	0.00	0.00	0.00	0.00	—	0.00
2057	0.41	0.41	—	—	—	—	1.85	1.85	—	0.78	0.78	—	0.00	0.00	0.00	0.00	—	0.00

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	9.99	9.65	3.72	28.9	0.06	0.21	4.81	5.02	0.21	1.22	1.43	427	10,641	11,067	43.4	0.32	77.3	12,325
Mit.	9.99	9.65	3.70	28.9	0.06	0.21	4.81	5.02	0.20	1.22	1.43	427	10,629	11,055	43.4	0.32	77.3	12,313
% Reduced	< 0.5%	—	< 0.5%	< 0.5%	—	1%	—	< 0.5%	1%	—	< 0.5%	—	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	8.63	8.37	3.73	14.9	0.06	0.20	4.81	5.01	0.20	1.22	1.42	427	10,346	10,772	43.4	0.33	76.7	12,033
Mit.	8.63	8.37	3.71	14.9	0.06	0.20	4.81	5.01	0.20	1.22	1.42	427	10,333	10,760	43.4	0.33	76.7	12,021

% Reduced	< 0.5%	—	< 0.5%	< 0.5%	—	1%	—	< 0.5%	1%	—	< 0.5%	—	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	9.27	8.97	3.74	21.1	0.06	0.20	4.46	4.67	0.20	1.13	1.34	427	10,418	10,845	43.4	0.33	76.9	12,105
Mit.	9.27	8.97	3.73	21.1	0.06	0.20	4.46	4.67	0.20	1.13	1.33	427	10,406	10,832	43.4	0.33	76.9	12,092
% Reduced	< 0.5%	—	< 0.5%	< 0.5%	—	1%	—	< 0.5%	1%	—	< 0.5%	—	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.69	1.64	0.68	3.86	0.01	0.04	0.81	0.85	0.04	0.21	0.24	70.6	1,725	1,795	7.18	0.05	12.7	2,004
Mit.	1.69	1.64	0.68	3.86	0.01	0.04	0.81	0.85	0.04	0.21	0.24	70.6	1,723	1,793	7.18	0.05	12.7	2,002
% Reduced	< 0.5%	< 0.5%	< 0.5%	< 0.5%	< 0.5%	1%	—	< 0.5%	1%	—	< 0.5%	—	< 0.5%	< 0.5%	< 0.5%	> -0.5%	—	< 0.5%
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	40.0	40.0	100	40.0	—	—	15.0	—	—	10.0	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—
Mit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.88	1.74	1.27	15.0	0.04	0.02	4.81	4.83	0.02	1.22	1.24	—	4,444	4,444	0.13	0.18	0.56	4,500
Area	7.85	7.77	0.11	12.4	< 0.005	0.01	—	0.01	0.01	—	0.01	—	36.0	36.0	< 0.005	< 0.005	—	36.2
Energy	0.26	0.13	2.33	1.50	0.01	0.18	—	0.18	0.18	—	0.18	—	5,795	5,795	0.47	0.03	—	5,816
Water	—	—	—	—	—	—	—	—	—	—	—	45.7	366	411	4.72	0.11	—	564

Waste	—	—	—	—	—	—	—	—	—	—	—	381	0.00	381	38.1	0.00	—	1,333
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	76.7	76.7
Total	9.99	9.65	3.72	28.9	0.06	0.21	4.81	5.02	0.21	1.22	1.43	427	10,641	11,067	43.4	0.32	77.3	12,325
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.83	1.70	1.40	13.4	0.04	0.02	4.81	4.83	0.02	1.22	1.24	—	4,185	4,185	0.14	0.19	0.01	4,244
Area	6.54	6.54	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.26	0.13	2.33	1.50	0.01	0.18	—	0.18	0.18	—	0.18	—	5,795	5,795	0.47	0.03	—	5,816
Water	—	—	—	—	—	—	—	—	—	—	—	45.7	366	411	4.72	0.11	—	564
Waste	—	—	—	—	—	—	—	—	—	—	—	381	0.00	381	38.1	0.00	—	1,333
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	76.7	76.7
Total	8.63	8.37	3.73	14.9	0.06	0.20	4.81	5.01	0.20	1.22	1.42	427	10,346	10,772	43.4	0.33	76.7	12,033
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.82	1.69	1.36	13.5	0.04	0.02	4.46	4.48	0.02	1.13	1.15	—	4,239	4,239	0.14	0.18	0.24	4,298
Area	7.19	7.15	0.06	6.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	17.8	17.8	< 0.005	< 0.005	—	17.8
Energy	0.26	0.13	2.33	1.50	0.01	0.18	—	0.18	0.18	—	0.18	—	5,795	5,795	0.47	0.03	—	5,816
Water	—	—	—	—	—	—	—	—	—	—	—	45.7	366	411	4.72	0.11	—	564
Waste	—	—	—	—	—	—	—	—	—	—	—	381	0.00	381	38.1	0.00	—	1,333
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	76.7	76.7
Total	9.27	8.97	3.74	21.1	0.06	0.20	4.46	4.67	0.20	1.13	1.34	427	10,418	10,845	43.4	0.33	76.9	12,105
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.33	0.31	0.25	2.47	0.01	< 0.005	0.81	0.82	< 0.005	0.21	0.21	—	702	702	0.02	0.03	0.04	712
Area	1.31	1.30	0.01	1.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.94	2.94	< 0.005	< 0.005	—	2.95
Energy	0.05	0.02	0.43	0.27	< 0.005	0.03	—	0.03	0.03	—	0.03	—	959	959	0.08	0.01	—	963
Water	—	—	—	—	—	—	—	—	—	—	—	7.57	60.6	68.1	0.78	0.02	—	93.3
Waste	—	—	—	—	—	—	—	—	—	—	—	63.1	0.00	63.1	6.30	0.00	—	221
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.7	12.7

Total	1.69	1.64	0.68	3.86	0.01	0.04	0.81	0.85	0.04	0.21	0.24	70.6	1,725	1,795	7.18	0.05	12.7	2,004

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.88	1.74	1.27	15.0	0.04	0.02	4.81	4.83	0.02	1.22	1.24	—	4,444	4,444	0.13	0.18	0.56	4,500
Area	7.85	7.77	0.11	12.4	< 0.005	0.01	—	0.01	0.01	—	0.01	—	36.0	36.0	< 0.005	< 0.005	—	36.2
Energy	0.26	0.13	2.32	1.49	0.01	0.18	—	0.18	0.18	—	0.18	—	5,783	5,783	0.47	0.03	—	5,804
Water	—	—	—	—	—	—	—	—	—	—	—	45.7	366	411	4.72	0.11	—	564
Waste	—	—	—	—	—	—	—	—	—	—	—	381	0.00	381	38.1	0.00	—	1,333
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	76.7	76.7
Total	9.99	9.65	3.70	28.9	0.06	0.21	4.81	5.02	0.20	1.22	1.43	427	10,629	11,055	43.4	0.32	77.3	12,313
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.83	1.70	1.40	13.4	0.04	0.02	4.81	4.83	0.02	1.22	1.24	—	4,185	4,185	0.14	0.19	0.01	4,244
Area	6.54	6.54	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.26	0.13	2.32	1.49	0.01	0.18	—	0.18	0.18	—	0.18	—	5,783	5,783	0.47	0.03	—	5,804
Water	—	—	—	—	—	—	—	—	—	—	—	45.7	366	411	4.72	0.11	—	564
Waste	—	—	—	—	—	—	—	—	—	—	—	381	0.00	381	38.1	0.00	—	1,333
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	76.7	76.7
Total	8.63	8.37	3.71	14.9	0.06	0.20	4.81	5.01	0.20	1.22	1.42	427	10,333	10,760	43.4	0.33	76.7	12,021
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.82	1.69	1.36	13.5	0.04	0.02	4.46	4.48	0.02	1.13	1.15	—	4,239	4,239	0.14	0.18	0.24	4,298
Area	7.19	7.15	0.06	6.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	17.8	17.8	< 0.005	< 0.005	—	17.8
Energy	0.26	0.13	2.32	1.49	0.01	0.18	—	0.18	0.18	—	0.18	—	5,783	5,783	0.47	0.03	—	5,804

Water	—	—	—	—	—	—	—	—	—	—	—	45.7	366	411	4.72	0.11	—	564
Waste	—	—	—	—	—	—	—	—	—	—	—	381	0.00	381	38.1	0.00	—	1,333
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	76.7	76.7
Total	9.27	8.97	3.73	21.1	0.06	0.20	4.46	4.67	0.20	1.13	1.33	427	10,406	10,832	43.4	0.33	76.9	12,092
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.33	0.31	0.25	2.47	0.01	< 0.005	0.81	0.82	< 0.005	0.21	0.21	—	702	702	0.02	0.03	0.04	712
Area	1.31	1.30	0.01	1.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.94	2.94	< 0.005	< 0.005	—	2.95
Energy	0.05	0.02	0.42	0.27	< 0.005	0.03	—	0.03	0.03	—	0.03	—	957	957	0.08	0.01	—	961
Water	—	—	—	—	—	—	—	—	—	—	—	7.57	60.6	68.1	0.78	0.02	—	93.3
Waste	—	—	—	—	—	—	—	—	—	—	—	63.1	0.00	63.1	6.30	0.00	—	221
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.7	12.7
Total	1.69	1.64	0.68	3.86	0.01	0.04	0.81	0.85	0.04	0.21	0.24	70.6	1,723	1,793	7.18	0.05	12.7	2,002

3. Construction Emissions Details

3.1. Site Preparation (2048) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.05	1.73	10.8	14.8	0.05	0.34	—	0.34	0.31	—	0.31	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.92	3.92	< 0.005	< 0.005	< 0.005	4.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.05	1.73	10.8	14.8	0.05	0.34	—	0.34	0.31	—	0.31	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.45	1.22	7.63	10.5	0.03	0.24	—	0.24	0.22	—	0.22	—	3,536	3,536	0.14	0.03	—	3,548
Dust From Material Movement	—	—	—	—	—	—	5.42	5.42	—	2.78	2.78	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.78	2.78	< 0.005	< 0.005	< 0.005	2.92
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.22	1.39	1.91	0.01	0.04	—	0.04	0.04	—	0.04	—	585	585	0.02	< 0.005	—	587
Dust From Material Movement	—	—	—	—	—	—	0.99	0.99	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.46	0.46	< 0.005	< 0.005	< 0.005	0.48

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.04	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.03	1.18	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	980	980	0.01	0.15	0.19	1,026
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.21	0.35	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	981	981	0.01	0.16	0.01	1,027
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.33	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	148	148	< 0.005	< 0.005	0.01	149
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.84	0.25	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	692	692	0.01	0.11	0.06	725
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.6	24.6	< 0.005	< 0.005	< 0.005	24.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.15	0.04	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	115	115	< 0.005	0.02	0.01	120

3.2. Site Preparation (2048) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	2.05	1.73	10.8	14.8	0.05	0.34	—	0.34	0.31	—	0.31	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.92	3.92	< 0.005	< 0.005	< 0.005	4.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.05	1.73	10.8	14.8	0.05	0.34	—	0.34	0.31	—	0.31	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.45	1.22	7.63	10.5	0.03	0.24	—	0.24	0.22	—	0.22	—	3,536	3,536	0.14	0.03	—	3,548
Dust From Material Movement	—	—	—	—	—	—	5.42	5.42	—	2.78	2.78	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.78	2.78	< 0.005	< 0.005	< 0.005	2.92
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.22	1.39	1.91	0.01	0.04	—	0.04	0.04	—	0.04	—	585	585	0.02	< 0.005	—	587

Dust From Material Movement	—	—	—	—	—	—	0.99	0.99	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.46	0.46	< 0.005	< 0.005	< 0.005	0.48
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.04	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.03	1.18	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	980	980	0.01	0.15	0.19	1,026
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.21	0.35	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	981	981	0.01	0.16	0.01	1,027
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.33	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	148	148	< 0.005	< 0.005	0.01	149
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.84	0.25	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	692	692	0.01	0.11	0.06	725
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.6	24.6	< 0.005	< 0.005	< 0.005	24.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.15	0.04	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	115	115	< 0.005	0.02	0.01	120

3.3. Site Preparation (2049) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.01	1.69	9.95	14.8	0.05	0.31	—	0.31	0.29	—	0.29	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.91	3.91	< 0.005	< 0.005	< 0.005	4.10
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.01	1.69	9.95	14.8	0.05	0.31	—	0.31	0.29	—	0.29	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.44	1.21	7.10	10.5	0.03	0.22	—	0.22	0.20	—	0.20	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.95
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.22	1.30	1.92	0.01	0.04	—	0.04	0.04	—	0.04	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.03	1.14	0.35	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	978	978	0.01	0.15	0.17	1,024
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.20	0.35	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	979	979	0.01	0.16	< 0.005	1,025
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.85	0.25	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	699	699	0.01	0.11	0.05	732
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	116	116	< 0.005	0.02	0.01	121

3.4. Site Preparation (2049) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.01	1.69	9.95	14.8	0.05	0.31	—	0.31	0.29	—	0.29	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.91	3.91	< 0.005	< 0.005	< 0.005	4.10
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.01	1.69	9.95	14.8	0.05	0.31	—	0.31	0.29	—	0.29	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.44	1.21	7.10	10.5	0.03	0.22	—	0.22	0.20	—	0.20	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.95
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.22	1.30	1.92	0.01	0.04	—	0.04	0.04	—	0.04	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.03	1.14	0.35	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	978	978	0.01	0.15	0.17	1,024
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.20	0.35	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	979	979	0.01	0.16	< 0.005	1,025
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.85	0.25	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	699	699	0.01	0.11	0.05	732
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	116	116	< 0.005	0.02	0.01	121

3.5. Site Preparation (2050) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.98	1.67	9.41	14.7	0.05	0.29	—	0.29	0.27	—	0.27	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.91	3.91	< 0.005	< 0.005	< 0.005	4.10
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.98	1.67	9.41	14.7	0.05	0.29	—	0.29	0.27	—	0.27	—	5,006	5,006	0.20	0.04	—	5,023

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.15
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.42	1.19	6.72	10.5	0.03	0.21	—	0.21	0.19	—	0.19	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.94
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.22	1.23	1.91	0.01	0.04	—	0.04	0.04	—	0.04	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.46	0.46	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	222
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.03	1.17	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	976	976	0.01	0.15	0.15	1,023

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	206
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.20	0.35	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	977	977	0.01	0.16	< 0.005	1,024
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.85	0.25	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	697	697	0.01	0.11	0.05	731
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	115	115	< 0.005	0.02	0.01	121

3.6. Site Preparation (2050) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.98	1.67	9.41	14.7	0.05	0.29	—	0.29	0.27	—	0.27	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.91	3.91	< 0.005	< 0.005	< 0.005	4.10
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.98	1.67	9.41	14.7	0.05	0.29	—	0.29	0.27	—	0.27	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.15
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.42	1.19	6.72	10.5	0.03	0.21	—	0.21	0.19	—	0.19	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.94
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.22	1.23	1.91	0.01	0.04	—	0.04	0.04	—	0.04	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.46	0.46	< 0.005	< 0.005	< 0.005	0.49

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	222
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.03	1.17	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	976	976	0.01	0.15	0.15	1,023
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	206
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.20	0.35	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	977	977	0.01	0.16	< 0.005	1,024
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.85	0.25	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	697	697	0.01	0.11	0.05	731
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	115	115	< 0.005	0.02	0.01	121

3.7. Site Preparation (2051) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.17	0.17	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.8. Site Preparation (2051) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—

Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.17	0.17	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.9. Site Preparation (2052) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.49	5.49	—	2.82	2.82	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.52	0.52	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.18	0.18	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.10. Site Preparation (2052) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.49	5.49	—	2.82	2.82	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.52	0.52	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.18	0.18	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.11. Site Preparation (2053) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.17	0.17	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.12. Site Preparation (2053) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.17	0.17	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.13. Site Preparation (2054) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.17	0.17	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.14. Site Preparation (2054) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.17	0.17	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.15. Site Preparation (2055) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.17	0.17	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.16. Site Preparation (2055) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.17	0.17	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.17. Site Preparation (2056) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.49	5.49	—	2.82	2.82	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.52	0.52	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.18	0.18	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.18. Site Preparation (2056) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.49	5.49	—	2.82	2.82	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.52	0.52	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.18	0.18	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.19. Site Preparation (2057) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.33	5.33	—	2.74	2.74	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.97	0.97	—	0.50	0.50	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—

Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.17	0.17	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.20. Site Preparation (2057) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.33	5.33	—	2.74	2.74	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.97	0.97	—	0.50	0.50	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.17	0.17	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.21. Grading (2048) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.20	1.84	10.5	20.1	0.06	0.32	—	0.32	0.30	—	0.30	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.92	3.92	< 0.005	< 0.005	< 0.005	4.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.20	1.84	10.5	20.1	0.06	0.32	—	0.32	0.30	—	0.30	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.55	1.30	7.39	14.2	0.04	0.23	—	0.23	0.21	—	0.21	—	4,660	4,660	0.19	0.04	—	4,676
Dust From Material Movement	—	—	—	—	—	—	2.54	2.54	—	1.01	1.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.78	2.78	< 0.005	< 0.005	< 0.005	2.92
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.24	1.35	2.59	0.01	0.04	—	0.04	0.04	—	0.04	—	771	771	0.03	0.01	—	774
Dust From Material Movement	—	—	—	—	—	—	0.46	0.46	—	0.18	0.18	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.46	0.46	< 0.005	< 0.005	< 0.005	0.48
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.04	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.03	1.18	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	980	980	0.01	0.15	0.19	1,026
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.21	0.35	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	981	981	0.01	0.16	0.01	1,027
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.33	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	148	148	< 0.005	< 0.005	0.01	149
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.84	0.25	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	692	692	0.01	0.11	0.06	725
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.6	24.6	< 0.005	< 0.005	< 0.005	24.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.15	0.04	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	115	115	< 0.005	0.02	0.01	120

3.22. Grading (2048) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.20	1.84	10.5	20.1	0.06	0.32	—	0.32	0.30	—	0.30	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.92	3.92	< 0.005	< 0.005	< 0.005	4.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	2.20	1.84	10.5	20.1	0.06	0.32	—	0.32	0.30	—	0.30	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.55	1.30	7.39	14.2	0.04	0.23	—	0.23	0.21	—	0.21	—	4,660	4,660	0.19	0.04	—	4,676
Dust From Material Movement	—	—	—	—	—	—	2.54	2.54	—	1.01	1.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.78	2.78	< 0.005	< 0.005	< 0.005	2.92
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.24	1.35	2.59	0.01	0.04	—	0.04	0.04	—	0.04	—	771	771	0.03	0.01	—	774
Dust From Material Movement	—	—	—	—	—	—	0.46	0.46	—	0.18	0.18	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.46	0.46	< 0.005	< 0.005	< 0.005	0.48
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.04	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.04	0.03	1.18	0.36	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	980	980	0.01	0.15	0.19	1,026
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.21	0.35	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	981	981	0.01	0.16	0.01	1,027
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.33	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	148	148	< 0.005	< 0.005	0.01	149
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.84	0.25	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	692	692	0.01	0.11	0.06	725
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.6	24.6	< 0.005	< 0.005	< 0.005	24.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.15	0.04	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	115	115	< 0.005	0.02	0.01	120

3.23. Grading (2049) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.17	1.82	10.1	20.0	0.06	0.30	—	0.30	0.28	—	0.28	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.91	3.91	< 0.005	< 0.005	< 0.005	4.10
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.17	1.82	10.1	20.0	0.06	0.30	—	0.30	0.28	—	0.28	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.55	1.30	7.20	14.3	0.04	0.22	—	0.22	0.20	—	0.20	—	4,712	4,712	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.95
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.24	1.31	2.61	0.01	0.04	—	0.04	0.04	—	0.04	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.03	1.14	0.35	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	978	978	0.01	0.15	0.17	1,024
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.20	0.35	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	979	979	0.01	0.16	< 0.005	1,025
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.85	0.25	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	699	699	0.01	0.11	0.05	732
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	116	116	< 0.005	0.02	0.01	121

3.24. Grading (2049) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	2.17	1.82	10.1	20.0	0.06	0.30	—	0.30	0.28	—	0.28	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.91	3.91	< 0.005	< 0.005	< 0.005	4.10
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.17	1.82	10.1	20.0	0.06	0.30	—	0.30	0.28	—	0.28	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.55	1.30	7.20	14.3	0.04	0.22	—	0.22	0.20	—	0.20	—	4,712	4,712	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.95
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.24	1.31	2.61	0.01	0.04	—	0.04	0.04	—	0.04	—	780	780	0.03	0.01	—	783

Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.03	1.14	0.35	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	978	978	0.01	0.15	0.17	1,024
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.20	0.35	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	979	979	0.01	0.16	< 0.005	1,025
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.85	0.25	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	699	699	0.01	0.11	0.05	732
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	116	116	< 0.005	0.02	0.01	121

3.25. Grading (2050) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.14	1.80	9.77	19.9	0.06	0.29	—	0.29	0.27	—	0.27	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.91	3.91	< 0.005	< 0.005	< 0.005	4.10
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.14	1.80	9.77	19.9	0.06	0.29	—	0.29	0.27	—	0.27	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.15
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.53	1.29	6.98	14.2	0.04	0.21	—	0.21	0.19	—	0.19	—	4,712	4,712	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.94
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.23	1.27	2.60	0.01	0.04	—	0.04	0.03	—	0.03	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.46	0.46	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	222
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.03	1.17	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	976	976	0.01	0.15	0.15	1,023
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	206
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.20	0.35	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	977	977	0.01	0.16	< 0.005	1,024
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.85	0.25	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	697	697	0.01	0.11	0.05	731
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	115	115	< 0.005	0.02	0.01	121

3.26. Grading (2050) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.14	1.80	9.77	19.9	0.06	0.29	—	0.29	0.27	—	0.27	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.91	3.91	< 0.005	< 0.005	< 0.005	4.10
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.14	1.80	9.77	19.9	0.06	0.29	—	0.29	0.27	—	0.27	—	6,596	6,596	0.27	0.05	—	6,619
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.15
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	1.53	1.29	6.98	14.2	0.04	0.21	—	0.21	0.19	—	0.19	—	4,712	4,712	0.19	0.04	—	4,728
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.94
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.23	1.27	2.60	0.01	0.04	—	0.04	0.03	—	0.03	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.46	0.46	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	222
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.03	1.17	0.37	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	976	976	0.01	0.15	0.15	1,023
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	206
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.02	1.20	0.35	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	977	977	0.01	0.16	< 0.005	1,024
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.85	0.25	0.01	0.01	0.25	0.26	0.01	0.07	0.08	—	697	697	0.01	0.11	0.05	731
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	115	115	< 0.005	0.02	0.01	121

3.27. Grading (2051) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.17	0.17	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.28. Grading (2051) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.17	0.17	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.29. Grading (2052) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.57	2.57	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.18	0.18	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.30. Grading (2052) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.57	2.57	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.18	0.18	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.31. Grading (2053) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—

Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.17	0.17	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.32. Grading (2053) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.17	0.17	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.33. Grading (2054) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.17	0.17	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.34. Grading (2054) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.17	0.17	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.35. Grading (2055) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.17	0.17	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.36. Grading (2055) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.17	0.17	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.37. Grading (2056) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.57	2.57	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.18	0.18	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.38. Grading (2056) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.57	2.57	—	1.02	1.02	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.18	0.18	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.39. Grading (2057) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.49	2.49	—	0.99	0.99	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.46	0.46	—	0.18	0.18	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.17	0.17	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.40. Grading (2057) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.49	2.49	—	0.99	0.99	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.46	0.46	—	0.18	0.18	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.26	0.26	—	0.07	0.07	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.17	0.17	—	0.04	0.04	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

3.41. Building Construction (2048) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.79	0.66	5.48	11.4	0.02	0.08	—	0.08	0.07	—	0.07	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.79	0.66	5.48	11.4	0.02	0.08	—	0.08	0.07	—	0.07	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	3.87	8.08	0.02	0.06	—	0.06	0.05	—	0.05	—	1,620	1,620	0.07	0.01	—	1,625
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.71	1.47	< 0.005	0.01	—	0.01	0.01	—	0.01	—	268	268	0.01	< 0.005	—	269
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.11	2.87	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,114	1,114	0.01	< 0.005	0.20	1,115
Vendor	0.03	0.02	0.64	0.28	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	565	565	0.01	0.09	0.05	591
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.12	2.27	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,033	1,033	0.01	0.01	0.01	1,035
Vendor	0.02	0.02	0.66	0.27	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	566	566	0.01	0.09	< 0.005	591
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.08	1.67	0.00	0.00	0.86	0.86	0.00	0.20	0.20	—	742	742	< 0.005	< 0.005	0.06	743
Vendor	0.02	0.01	0.45	0.19	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	399	399	0.01	0.06	0.02	417
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.30	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	123	123	< 0.005	< 0.005	0.01	123
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	66.1	66.1	< 0.005	0.01	< 0.005	69.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.42. Building Construction (2048) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.79	0.66	5.48	11.4	0.02	0.08	—	0.08	0.07	—	0.07	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.79	0.66	5.48	11.4	0.02	0.08	—	0.08	0.07	—	0.07	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	3.87	8.08	0.02	0.06	—	0.06	0.05	—	0.05	—	1,620	1,620	0.07	0.01	—	1,625
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.71	1.47	< 0.005	0.01	—	0.01	0.01	—	0.01	—	268	268	0.01	< 0.005	—	269
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.11	2.87	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,114	1,114	0.01	< 0.005	0.20	1,115
Vendor	0.03	0.02	0.64	0.28	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	565	565	0.01	0.09	0.05	591
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.12	2.27	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,033	1,033	0.01	0.01	0.01	1,035
Vendor	0.02	0.02	0.66	0.27	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	566	566	0.01	0.09	< 0.005	591
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.09	0.09	0.08	1.67	0.00	0.00	0.86	0.86	0.00	0.20	0.20	—	742	742	< 0.005	< 0.005	0.06	743
Vendor	0.02	0.01	0.45	0.19	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	399	399	0.01	0.06	0.02	417
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.30	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	123	123	< 0.005	< 0.005	0.01	123
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	66.1	66.1	< 0.005	0.01	< 0.005	69.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.43. Building Construction (2049) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.79	0.66	5.45	11.4	0.02	0.08	—	0.08	0.07	—	0.07	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.79	0.66	5.45	11.4	0.02	0.08	—	0.08	0.07	—	0.07	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.56	0.47	3.89	8.16	0.02	0.06	—	0.06	0.05	—	0.05	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.71	1.49	< 0.005	0.01	—	0.01	0.01	—	0.01	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.11	2.87	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,112	1,112	0.01	< 0.005	0.17	1,114
Vendor	0.03	0.02	0.61	0.27	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	561	561	0.01	0.09	0.04	587
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.12	2.27	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,031	1,031	0.01	0.01	< 0.005	1,033
Vendor	0.02	0.02	0.65	0.27	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	562	562	0.01	0.09	< 0.005	587
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.08	1.68	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	749	749	< 0.005	< 0.005	0.05	750
Vendor	0.02	0.01	0.46	0.19	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	401	401	0.01	0.06	0.01	419
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.31	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	124	124	< 0.005	< 0.005	0.01	124
Vendor	< 0.005	< 0.005	0.08	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	66.4	66.4	< 0.005	0.01	< 0.005	69.4

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.44. Building Construction (2049) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.79	0.66	5.45	11.4	0.02	0.08	—	0.08	0.07	—	0.07	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.79	0.66	5.45	11.4	0.02	0.08	—	0.08	0.07	—	0.07	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	3.89	8.16	0.02	0.06	—	0.06	0.05	—	0.05	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.10	0.09	0.71	1.49	< 0.005	0.01	—	0.01	0.01	—	0.01	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.11	2.87	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,112	1,112	0.01	< 0.005	0.17	1,114
Vendor	0.03	0.02	0.61	0.27	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	561	561	0.01	0.09	0.04	587
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.12	2.27	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,031	1,031	0.01	0.01	< 0.005	1,033
Vendor	0.02	0.02	0.65	0.27	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	562	562	0.01	0.09	< 0.005	587
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.08	1.68	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	749	749	< 0.005	< 0.005	0.05	750
Vendor	0.02	0.01	0.46	0.19	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	401	401	0.01	0.06	0.01	419
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.31	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	124	124	< 0.005	< 0.005	0.01	124
Vendor	< 0.005	< 0.005	0.08	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	66.4	66.4	< 0.005	0.01	< 0.005	69.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.45. Building Construction (2050) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.78	0.66	5.41	11.4	0.02	0.08	—	0.08	0.07	—	0.07	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.78	0.66	5.41	11.4	0.02	0.08	—	0.08	0.07	—	0.07	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	3.87	8.16	0.02	0.06	—	0.06	0.05	—	0.05	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.71	1.49	< 0.005	0.01	—	0.01	0.01	—	0.01	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.11	2.87	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,111	1,111	0.01	< 0.005	0.15	1,112
Vendor	0.03	0.02	0.64	0.27	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	557	557	0.01	0.09	0.03	583
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.12	2.27	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,030	1,030	0.01	0.01	< 0.005	1,032
Vendor	0.02	0.02	0.65	0.27	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	558	558	0.01	0.09	< 0.005	584
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.08	1.68	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	748	748	< 0.005	< 0.005	0.05	749
Vendor	0.02	0.01	0.46	0.19	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	398	398	0.01	0.06	0.01	417
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.31	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	124	124	< 0.005	< 0.005	0.01	124
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	66.0	66.0	< 0.005	0.01	< 0.005	69.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.46. Building Construction (2050) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.78	0.66	5.41	11.4	0.02	0.08	—	0.08	0.07	—	0.07	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.78	0.66	5.41	11.4	0.02	0.08	—	0.08	0.07	—	0.07	—	2,293	2,293	0.09	0.02	—	2,301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	3.87	8.16	0.02	0.06	—	0.06	0.05	—	0.05	—	1,638	1,638	0.07	0.01	—	1,643
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.71	1.49	< 0.005	0.01	—	0.01	0.01	—	0.01	—	271	271	0.01	< 0.005	—	272
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.11	2.87	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,111	1,111	0.01	< 0.005	0.15	1,112
Vendor	0.03	0.02	0.64	0.27	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	557	557	0.01	0.09	0.03	583
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.12	2.27	0.00	0.00	1.31	1.31	0.00	0.31	0.31	—	1,030	1,030	0.01	0.01	< 0.005	1,032
Vendor	0.02	0.02	0.65	0.27	0.01	0.01	0.26	0.26	0.01	0.07	0.08	—	558	558	0.01	0.09	< 0.005	584
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.08	1.68	0.00	0.00	0.87	0.87	0.00	0.20	0.20	—	748	748	< 0.005	< 0.005	0.05	749
Vendor	0.02	0.01	0.46	0.19	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	398	398	0.01	0.06	0.01	417
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.31	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	124	124	< 0.005	< 0.005	0.01	124
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	66.0	66.0	< 0.005	0.01	< 0.005	69.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.47. Building Construction (2051) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.81	0.81	—	0.20	0.20	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.15	0.15	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.48. Building Construction (2051) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.81	0.81	—	0.20	0.20	—	—	—	—	—	—	—

Vendor	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.15	0.15	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.49. Building Construction (2052) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.81	0.81	—	0.20	0.20	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.15	0.15	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.50. Building Construction (2052) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.81	0.81	—	0.20	0.20	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.15	0.15	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.51. Building Construction (2053) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.81	0.81	—	0.20	0.20	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.15	0.15	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.52. Building Construction (2053) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.81	0.81	—	0.20	0.20	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.15	0.15	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.53. Building Construction (2054) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.81	0.81	—	0.20	0.20	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.15	0.15	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.54. Building Construction (2054) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.81	0.81	—	0.20	0.20	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.15	0.15	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.55. Building Construction (2055) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.81	0.81	—	0.20	0.20	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.15	0.15	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.56. Building Construction (2055) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.81	0.81	—	0.20	0.20	—	—	—	—	—	—	—

Vendor	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.15	0.15	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.57. Building Construction (2056) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.81	0.81	—	0.20	0.20	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.15	0.15	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.58. Building Construction (2056) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.81	0.81	—	0.20	0.20	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.15	0.15	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.59. Building Construction (2057) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.79	0.79	—	0.20	0.20	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.14	0.14	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.60. Building Construction (2057) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	1.23	1.23	—	0.31	0.31	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.20	0.20	—	0.05	0.05	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.79	0.79	—	0.20	0.20	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.14	0.14	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.61. Paving (2048) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.51	0.43	4.91	9.68	0.01	0.07	—	0.07	0.06	—	0.06	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.51	0.43	4.91	9.68	0.01	0.07	—	0.07	0.06	—	0.06	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.30	3.47	6.84	0.01	0.05	—	0.05	0.04	—	0.04	—	1,067	1,067	0.04	0.01	—	1,071
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.63	1.25	< 0.005	0.01	—	0.01	0.01	—	0.01	—	177	177	0.01	< 0.005	—	177
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.04	223
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	188	188	< 0.005	0.03	0.02	197
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	189	189	< 0.005	0.03	< 0.005	197
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.33	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	148	148	< 0.005	< 0.005	0.01	149
Vendor	0.01	< 0.005	0.15	0.06	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	133	133	< 0.005	0.02	0.01	139
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.6	24.6	< 0.005	< 0.005	< 0.005	24.6
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.0	22.0	< 0.005	< 0.005	< 0.005	23.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.62. Paving (2048) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.51	0.43	4.91	9.68	0.01	0.07	—	0.07	0.06	—	0.06	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.51	0.43	4.91	9.68	0.01	0.07	—	0.07	0.06	—	0.06	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.30	3.47	6.84	0.01	0.05	—	0.05	0.04	—	0.04	—	1,067	1,067	0.04	0.01	—	1,071
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.63	1.25	< 0.005	0.01	—	0.01	0.01	—	0.01	—	177	177	0.01	< 0.005	—	177
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.04	223
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	188	188	< 0.005	0.03	0.02	197
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	189	189	< 0.005	0.03	< 0.005	197
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.33	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	148	148	< 0.005	< 0.005	0.01	149
Vendor	0.01	< 0.005	0.15	0.06	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	133	133	< 0.005	0.02	0.01	139
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.6	24.6	< 0.005	< 0.005	< 0.005	24.6
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.0	22.0	< 0.005	< 0.005	< 0.005	23.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.63. Paving (2049) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.50	0.42	4.89	9.68	0.01	0.06	—	0.06	0.06	—	0.06	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	0.42	4.89	9.68	0.01	0.06	—	0.06	0.06	—	0.06	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.30	3.49	6.91	0.01	0.04	—	0.04	0.04	—	0.04	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.64	1.26	< 0.005	0.01	—	0.01	0.01	—	0.01	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	223
Vendor	0.01	0.01	0.20	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	187	187	< 0.005	0.03	0.01	196
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	207
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	187	187	< 0.005	0.03	< 0.005	196
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	0.01	< 0.005	0.15	0.06	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	134	134	< 0.005	0.02	< 0.005	140
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.1	22.1	< 0.005	< 0.005	< 0.005	23.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.64. Paving (2049) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.50	0.42	4.89	9.68	0.01	0.06	—	0.06	0.06	—	0.06	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	0.42	4.89	9.68	0.01	0.06	—	0.06	0.06	—	0.06	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.30	3.49	6.91	0.01	0.04	—	0.04	0.04	—	0.04	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.64	1.26	< 0.005	0.01	—	0.01	0.01	—	0.01	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	223
Vendor	0.01	0.01	0.20	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	187	187	< 0.005	0.03	0.01	196
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	207
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	187	187	< 0.005	0.03	< 0.005	196
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	0.01	< 0.005	0.15	0.06	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	134	134	< 0.005	0.02	< 0.005	140
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.1	22.1	< 0.005	< 0.005	< 0.005	23.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.65. Paving (2050) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.50	0.42	4.88	9.68	0.01	0.06	—	0.06	0.06	—	0.06	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	0.42	4.88	9.68	0.01	0.06	—	0.06	0.06	—	0.06	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.30	3.49	6.91	0.01	0.04	—	0.04	0.04	—	0.04	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.64	1.26	< 0.005	0.01	—	0.01	0.01	—	0.01	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	222
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	186	186	< 0.005	0.03	0.01	194
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	206
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	186	186	< 0.005	0.03	< 0.005	195
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	0.01	< 0.005	0.15	0.06	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	133	133	< 0.005	0.02	< 0.005	139
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.0	22.0	< 0.005	< 0.005	< 0.005	23.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.66. Paving (2050) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.50	0.42	4.88	9.68	0.01	0.06	—	0.06	0.06	—	0.06	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	0.42	4.88	9.68	0.01	0.06	—	0.06	0.06	—	0.06	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.30	3.49	6.91	0.01	0.04	—	0.04	0.04	—	0.04	—	1,079	1,079	0.04	0.01	—	1,083
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.64	1.26	< 0.005	0.01	—	0.01	0.01	—	0.01	—	179	179	0.01	< 0.005	—	179
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	222
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	186	186	< 0.005	0.03	0.01	194
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	206
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	186	186	< 0.005	0.03	< 0.005	195
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	0.01	< 0.005	0.15	0.06	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	133	133	< 0.005	0.02	< 0.005	139
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.0	22.0	< 0.005	< 0.005	< 0.005	23.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.67. Paving (2051) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—

Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.68. Paving (2051) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.69. Paving (2052) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.70. Paving (2052) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.71. Paving (2053) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.72. Paving (2053) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.73. Paving (2054) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.74. Paving (2054) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.75. Paving (2055) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—

Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.76. Paving (2055) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.77. Paving (2056) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.78. Paving (2056) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.79. Paving (2057) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.80. Paving (2057) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—

Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.81. Architectural Coating (2048) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134

Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.52	0.77	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	94.3	94.3	< 0.005	< 0.005	—	94.7
Architectural Coatings	2.28	2.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.6	15.6	< 0.005	< 0.005	—	15.7
Architectural Coatings	0.42	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.04	223
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	188	188	< 0.005	0.03	0.02	197
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	189	189	< 0.005	0.03	< 0.005	197
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.33	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	148	148	< 0.005	< 0.005	0.01	149
Vendor	0.01	< 0.005	0.15	0.06	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	133	133	< 0.005	0.02	0.01	139
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.6	24.6	< 0.005	< 0.005	< 0.005	24.6
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.0	22.0	< 0.005	< 0.005	< 0.005	23.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.82. Architectural Coating (2048) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.52	0.77	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	94.3	94.3	< 0.005	< 0.005	—	94.7
Architectural Coatings	2.28	2.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.6	15.6	< 0.005	< 0.005	—	15.7
Architectural Coatings	0.42	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.04	223
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	188	188	< 0.005	0.03	0.02	197
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	189	189	< 0.005	0.03	< 0.005	197
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.33	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	148	148	< 0.005	< 0.005	0.01	149
Vendor	0.01	< 0.005	0.15	0.06	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	133	133	< 0.005	0.02	0.01	139
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.6	24.6	< 0.005	< 0.005	< 0.005	24.6
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.0	22.0	< 0.005	< 0.005	< 0.005	23.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.83. Architectural Coating (2049) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	2.31	2.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8

Architect Coatings	0.42	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	223
Vendor	0.01	0.01	0.20	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	187	187	< 0.005	0.03	0.01	196
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	207
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	187	187	< 0.005	0.03	< 0.005	196
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	0.01	< 0.005	0.15	0.06	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	134	134	< 0.005	0.02	< 0.005	140
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.1	22.1	< 0.005	< 0.005	< 0.005	23.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.84. Architectural Coating (2049) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	2.31	2.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.42	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	223
Vendor	0.01	0.01	0.20	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	187	187	< 0.005	0.03	0.01	196
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	207
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	187	187	< 0.005	0.03	< 0.005	196
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	0.01	< 0.005	0.15	0.06	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	134	134	< 0.005	0.02	< 0.005	140
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.1	22.1	< 0.005	< 0.005	< 0.005	23.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.85. Architectural Coating (2050) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7

Architect Coatings	2.31	2.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.42	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	222
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	186	186	< 0.005	0.03	0.01	194
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	206
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	186	186	< 0.005	0.03	< 0.005	195
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	0.01	< 0.005	0.15	0.06	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	133	133	< 0.005	0.02	< 0.005	139
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.0	22.0	< 0.005	< 0.005	< 0.005	23.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.86. Architectural Coating (2050) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	2.31	2.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.42	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	222
Vendor	0.01	0.01	0.21	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	186	186	< 0.005	0.03	0.01	194
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	206
Vendor	0.01	0.01	0.22	0.09	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	186	186	< 0.005	0.03	< 0.005	195

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	0.01	< 0.005	0.15	0.06	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	133	133	< 0.005	0.02	< 0.005	139
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	22.0	22.0	< 0.005	< 0.005	< 0.005	23.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.87. Architectural Coating (2051) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.31	2.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.42	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.88. Architectural Coating (2051) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.31	2.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.42	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.89. Architectural Coating (2052) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.32	2.32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.42	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.90. Architectural Coating (2052) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.32	2.32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.42	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.91. Architectural Coating (2053) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architect Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.31	2.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.42	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.92. Architectural Coating (2053) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	2.31	2.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.42	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.93. Architectural Coating (2054) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.31	2.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coating	0.42	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.94. Architectural Coating (2054) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.31	2.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.42	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.95. Architectural Coating (2055) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coating	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.31	2.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.42	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.96. Architectural Coating (2055) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architect Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architect ural Coating s	2.31	2.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architect ural Coating s	0.42	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.97. Architectural Coating (2056) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architect ural Coating s	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architect ural Coating s	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	2.32	2.32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.42	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.98. Architectural Coating (2056) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.32	2.32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coating	0.42	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.99. Architectural Coating (2057) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.25	2.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.41	0.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.100. Architectural Coating (2057) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coating	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	3.23	3.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.25	2.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.41	0.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.07	0.07	—	0.02	0.02	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.49	0.46	0.33	3.92	0.01	< 0.005	1.26	1.26	< 0.005	0.32	0.32	—	1,162	1,162	0.03	0.05	0.15	1,176

Apartments Mid Rise	1.39	1.29	0.94	11.1	0.03	0.01	3.56	3.57	0.01	0.90	0.91	—	3,283	3,283	0.10	0.13	0.41	3,324
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.88	1.74	1.27	15.0	0.04	0.02	4.81	4.83	0.02	1.22	1.24	—	4,444	4,444	0.13	0.18	0.56	4,500
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.48	0.44	0.37	3.49	0.01	< 0.005	1.26	1.26	< 0.005	0.32	0.32	—	1,094	1,094	0.04	0.05	< 0.005	1,109
Apartments Mid Rise	1.35	1.25	1.03	9.87	0.03	0.01	3.55	3.57	0.01	0.90	0.91	—	3,091	3,091	0.10	0.14	0.01	3,135
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.83	1.70	1.40	13.4	0.04	0.02	4.81	4.83	0.02	1.22	1.24	—	4,185	4,185	0.14	0.19	0.01	4,244
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.09	0.08	0.06	0.65	< 0.005	< 0.005	0.21	0.21	< 0.005	0.05	0.05	—	183	183	0.01	0.01	0.01	186
Apartments Mid Rise	0.25	0.23	0.18	1.82	0.01	< 0.005	0.60	0.60	< 0.005	0.15	0.16	—	518	518	0.02	0.02	0.03	526
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.33	0.31	0.25	2.47	0.01	< 0.005	0.81	0.82	< 0.005	0.21	0.21	—	702	702	0.02	0.03	0.04	712

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.49	0.46	0.33	3.92	0.01	< 0.005	1.26	1.26	< 0.005	0.32	0.32	—	1,162	1,162	0.03	0.05	0.15	1,176
Apartments Mid Rise	1.39	1.29	0.94	11.1	0.03	0.01	3.56	3.57	0.01	0.90	0.91	—	3,283	3,283	0.10	0.13	0.41	3,324
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.88	1.74	1.27	15.0	0.04	0.02	4.81	4.83	0.02	1.22	1.24	—	4,444	4,444	0.13	0.18	0.56	4,500
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.48	0.44	0.37	3.49	0.01	< 0.005	1.26	1.26	< 0.005	0.32	0.32	—	1,094	1,094	0.04	0.05	< 0.005	1,109
Apartments Mid Rise	1.35	1.25	1.03	9.87	0.03	0.01	3.55	3.57	0.01	0.90	0.91	—	3,091	3,091	0.10	0.14	0.01	3,135
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.83	1.70	1.40	13.4	0.04	0.02	4.81	4.83	0.02	1.22	1.24	—	4,185	4,185	0.14	0.19	0.01	4,244
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	0.09	0.08	0.06	0.65	< 0.005	< 0.005	0.21	0.21	< 0.005	0.05	0.05	—	183	183	0.01	0.01	0.01	186
Apartments Mid Rise	0.25	0.23	0.18	1.82	0.01	< 0.005	0.60	0.60	< 0.005	0.15	0.16	—	518	518	0.02	0.02	0.03	526
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.33	0.31	0.25	2.47	0.01	< 0.005	0.81	0.82	< 0.005	0.21	0.21	—	702	702	0.02	0.03	0.04	712

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	494	494	0.04	< 0.005	—	496
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	493	493	0.04	< 0.005	—	496
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	1,941	1,941	0.14	0.02	—	1,950
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,929	2,929	0.21	0.03	—	2,942

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	494	494	0.04	< 0.005	—	496
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	493	493	0.04	< 0.005	—	496
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	1,941	1,941	0.14	0.02	—	1,950
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,929	2,929	0.21	0.03	—	2,942
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	81.8	81.8	0.01	< 0.005	—	82.2
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	81.7	81.7	0.01	< 0.005	—	82.0
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	321	321	0.02	< 0.005	—	323
Total	—	—	—	—	—	—	—	—	—	—	—	—	485	485	0.04	< 0.005	—	487

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	499	499	0.04	< 0.005	—	501
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	495	495	0.04	< 0.005	—	497
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	1,941	1,941	0.14	0.02	—	1,950
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,935	2,935	0.21	0.03	—	2,948
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	499	499	0.04	< 0.005	—	501
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	495	495	0.04	< 0.005	—	497
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	1,941	1,941	0.14	0.02	—	1,950
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,935	2,935	0.21	0.03	—	2,948
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	82.6	82.6	0.01	< 0.005	—	83.0
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	82.0	82.0	0.01	< 0.005	—	82.3

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	321	321	0.02	< 0.005	—	323
Total	—	—	—	—	—	—	—	—	—	—	—	—	486	486	0.04	< 0.005	—	488

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.09	0.05	0.81	0.34	0.01	0.07	—	0.07	0.07	—	0.07	—	1,024	1,024	0.09	< 0.005	—	1,027
Apartments Mid Rise	0.04	0.02	0.30	0.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	385	385	0.03	< 0.005	—	386
High Turnover (Sit Down Restaurant)	0.13	0.07	1.22	1.03	0.01	0.09	—	0.09	0.09	—	0.09	—	1,457	1,457	0.13	< 0.005	—	1,461
Total	0.26	0.13	2.33	1.50	0.01	0.18	—	0.18	0.18	—	0.18	—	2,866	2,866	0.25	0.01	—	2,874
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.09	0.05	0.81	0.34	0.01	0.07	—	0.07	0.07	—	0.07	—	1,024	1,024	0.09	< 0.005	—	1,027
Apartments Mid Rise	0.04	0.02	0.30	0.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	385	385	0.03	< 0.005	—	386

High Turnover (Sit Down Restaurant)	0.13	0.07	1.22	1.03	0.01	0.09	—	0.09	0.09	—	0.09	—	1,457	1,457	0.13	< 0.005	—	1,461
Total	0.26	0.13	2.33	1.50	0.01	0.18	—	0.18	0.18	—	0.18	—	2,866	2,866	0.25	0.01	—	2,874
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.02	0.01	0.15	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	170	170	0.02	< 0.005	—	170
Apartments Mid Rise	0.01	< 0.005	0.06	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	63.7	63.7	0.01	< 0.005	—	63.9
High Turnover (Sit Down Restaurant)	0.02	0.01	0.22	0.19	< 0.005	0.02	—	0.02	0.02	—	0.02	—	241	241	0.02	< 0.005	—	242
Total	0.05	0.02	0.43	0.27	< 0.005	0.03	—	0.03	0.03	—	0.03	—	475	475	0.04	< 0.005	—	476

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.09	0.05	0.79	0.34	0.01	0.06	—	0.06	0.06	—	0.06	—	1,008	1,008	0.09	< 0.005	—	1,011
Apartments Mid Rise	0.04	0.02	0.30	0.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	382	382	0.03	< 0.005	—	383

High Turnover (Sit Down Restaurant)	0.13	0.07	1.22	1.03	0.01	0.09	—	0.09	0.09	—	0.09	—	1,457	1,457	0.13	< 0.005	—	1,461
Total	0.26	0.13	2.32	1.49	0.01	0.18	—	0.18	0.18	—	0.18	—	2,848	2,848	0.25	0.01	—	2,855
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.09	0.05	0.79	0.34	0.01	0.06	—	0.06	0.06	—	0.06	—	1,008	1,008	0.09	< 0.005	—	1,011
Apartments Mid Rise	0.04	0.02	0.30	0.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	382	382	0.03	< 0.005	—	383
High Turnover (Sit Down Restaurant)	0.13	0.07	1.22	1.03	0.01	0.09	—	0.09	0.09	—	0.09	—	1,457	1,457	0.13	< 0.005	—	1,461
Total	0.26	0.13	2.32	1.49	0.01	0.18	—	0.18	0.18	—	0.18	—	2,848	2,848	0.25	0.01	—	2,855
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.02	0.01	0.14	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	167	167	0.01	< 0.005	—	167
Apartments Mid Rise	0.01	< 0.005	0.05	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	63.2	63.2	0.01	< 0.005	—	63.4
High Turnover (Sit Down Restaurant)	0.02	0.01	0.22	0.19	< 0.005	0.02	—	0.02	0.02	—	0.02	—	241	241	0.02	< 0.005	—	242
Total	0.05	0.02	0.42	0.27	< 0.005	0.03	—	0.03	0.03	—	0.03	—	471	471	0.04	< 0.005	—	473

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	6.02	6.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.52	0.52	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.31	1.24	0.11	12.4	< 0.005	0.01	—	0.01	0.01	—	0.01	—	36.0	36.0	< 0.005	< 0.005	—	36.2
Total	7.85	7.77	0.11	12.4	< 0.005	0.01	—	0.01	0.01	—	0.01	—	36.0	36.0	< 0.005	< 0.005	—	36.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	6.02	6.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.52	0.52	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	6.54	6.54	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.10	1.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architect Coatings	0.10	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landsca pe Equipm ent	0.12	0.11	0.01	1.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.94	2.94	< 0.005	< 0.005	—	2.95
Total	1.31	1.30	0.01	1.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.94	2.94	< 0.005	< 0.005	—	2.95

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consum er Product s	6.02	6.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architect ural Coating s	0.52	0.52	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landsca pe Equipm ent	1.31	1.24	0.11	12.4	< 0.005	0.01	—	0.01	0.01	—	0.01	—	36.0	36.0	< 0.005	< 0.005	—	36.2
Total	7.85	7.77	0.11	12.4	< 0.005	0.01	—	0.01	0.01	—	0.01	—	36.0	36.0	< 0.005	< 0.005	—	36.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consum er Product s	6.02	6.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architect ural Coating	0.52	0.52	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	6.54	6.54	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consum er Product s	1.10	1.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architect ural Coating s	0.10	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landsca pe Equipm ent	0.12	0.11	0.01	1.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.94	2.94	< 0.005	< 0.005	—	2.95
Total	1.31	1.30	0.01	1.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.94	2.94	< 0.005	< 0.005	—	2.95

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	16.5	277	294	1.71	0.04	—	349
Apartme nts Mid Rise	—	—	—	—	—	—	—	—	—	—	—	1.34	3.74	5.09	0.14	< 0.005	—	9.52

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	27.9	84.9	113	2.87	0.07	—	205
Total	—	—	—	—	—	—	—	—	—	—	—	45.7	366	411	4.72	0.11	—	564
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	16.5	277	294	1.71	0.04	—	349
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	1.34	3.74	5.09	0.14	< 0.005	—	9.52
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	27.9	84.9	113	2.87	0.07	—	205
Total	—	—	—	—	—	—	—	—	—	—	—	45.7	366	411	4.72	0.11	—	564
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	2.73	45.9	48.6	0.28	0.01	—	57.8
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	0.22	0.62	0.84	0.02	< 0.005	—	1.58
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	4.62	14.1	18.7	0.47	0.01	—	34.0
Total	—	—	—	—	—	—	—	—	—	—	—	7.57	60.6	68.1	0.78	0.02	—	93.3

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	16.5	277	294	1.71	0.04	—	349
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	1.34	3.74	5.09	0.14	< 0.005	—	9.52
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	27.9	84.9	113	2.87	0.07	—	205
Total	—	—	—	—	—	—	—	—	—	—	—	45.7	366	411	4.72	0.11	—	564
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	16.5	277	294	1.71	0.04	—	349
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	1.34	3.74	5.09	0.14	< 0.005	—	9.52
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	27.9	84.9	113	2.87	0.07	—	205
Total	—	—	—	—	—	—	—	—	—	—	—	45.7	366	411	4.72	0.11	—	564
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	2.73	45.9	48.6	0.28	0.01	—	57.8

Apartment Mid Rise	—	—	—	—	—	—	—	—	—	—	—	0.22	0.62	0.84	0.02	< 0.005	—	1.58
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	4.62	14.1	18.7	0.47	0.01	—	34.0
Total	—	—	—	—	—	—	—	—	—	—	—	7.57	60.6	68.1	0.78	0.02	—	93.3

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	24.4	0.00	24.4	2.44	0.00	—	85.4
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	48.7	0.00	48.7	4.87	0.00	—	170
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	308	0.00	308	30.8	0.00	—	1,077
Total	—	—	—	—	—	—	—	—	—	—	—	381	0.00	381	38.1	0.00	—	1,333
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	24.4	0.00	24.4	2.44	0.00	—	85.4

Apartment Mid Rise	—	—	—	—	—	—	—	—	—	—	—	48.7	0.00	48.7	4.87	0.00	—	170
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	308	0.00	308	30.8	0.00	—	1,077
Total	—	—	—	—	—	—	—	—	—	—	—	381	0.00	381	38.1	0.00	—	1,333
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	4.04	0.00	4.04	0.40	0.00	—	14.1
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	51.0	0.00	51.0	5.09	0.00	—	178
Total	—	—	—	—	—	—	—	—	—	—	—	63.1	0.00	63.1	6.30	0.00	—	221

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	24.4	0.00	24.4	2.44	0.00	—	85.4
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	48.7	0.00	48.7	4.87	0.00	—	170

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	308	0.00	308	30.8	0.00	—	1,077
Total	—	—	—	—	—	—	—	—	—	—	—	381	0.00	381	38.1	0.00	—	1,333
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	24.4	0.00	24.4	2.44	0.00	—	85.4
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	48.7	0.00	48.7	4.87	0.00	—	170
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	308	0.00	308	30.8	0.00	—	1,077
Total	—	—	—	—	—	—	—	—	—	—	—	381	0.00	381	38.1	0.00	—	1,333
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	4.04	0.00	4.04	0.40	0.00	—	14.1
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	8.06	0.00	8.06	0.81	0.00	—	28.2
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	51.0	0.00	51.0	5.09	0.00	—	178
Total	—	—	—	—	—	—	—	—	—	—	—	63.1	0.00	63.1	6.30	0.00	—	221

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.84	0.84
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.83	0.83
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	75.0	75.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	76.7	76.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.84	0.84
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.83	0.83
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	75.0	75.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	76.7	76.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.14	0.14
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.14	0.14
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.4	12.4
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.7	12.7

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.84	0.84
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.83	0.83
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	75.0	75.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	76.7	76.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.84	0.84
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.83	0.83
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	75.0	75.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	76.7	76.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.14	0.14
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.14	0.14
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.4	12.4
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.7	12.7

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	1/6/2048	12/21/2057	5.00	2,600	—
Grading	Grading	1/6/2048	12/21/2057	5.00	2,600	—
Building Construction	Building Construction	1/6/2048	12/21/2057	5.00	2,600	—
Paving	Paving	1/6/2048	12/21/2057	5.00	2,600	—
Architectural Coating	Architectural Coating	1/6/2048	12/21/2057	5.00	2,600	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37

Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42

Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	20.0	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	20.0	20.0	HHDT
Site Preparation	Onsite truck	1.00	1.00	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	20.0	20.0	HHDT
Grading	Onsite truck	1.00	1.00	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	100	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	30.0	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	20.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	10.0	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT

Architectural Coating	—	—	—	—
Architectural Coating	Worker	20.0	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	10.0	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	20.0	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	20.0	20.0	HHDT
Site Preparation	Onsite truck	1.00	1.00	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	20.0	20.0	HHDT
Grading	Onsite truck	1.00	1.00	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	100	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	30.0	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	20.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	10.0	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT

Architectural Coating	—	—	—	—
Architectural Coating	Worker	20.0	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	10.0	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	472,149	157,383	72,000	24,000	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	3,900	0.00	—
Grading	—	—	7,800	0.00	—
Paving	0.00	0.00	0.00	0.00	0.66

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Single Family Housing	0.66	0%
Apartments Mid Rise	—	0%
High Turnover (Sit Down Restaurant)	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2048	0.00	453	0.03	< 0.005
2049	0.00	453	0.03	< 0.005
2050	0.00	453	0.03	< 0.005
2051	0.00	453	0.03	< 0.005
2052	0.00	453	0.03	< 0.005
2053	0.00	453	0.03	< 0.005
2054	0.00	453	0.03	< 0.005
2055	0.00	453	0.03	< 0.005
2056	0.00	453	0.03	< 0.005
2057	0.00	453	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year

Single Family Housing	230	230	230	83,950	1,777	1,777	1,777	648,750
Apartments Mid Rise	650	650	650	237,250	5,023	5,023	5,023	1,833,425
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	230	230	230	83,950	1,777	1,777	1,777	648,750
Apartments Mid Rise	650	650	650	237,250	5,023	5,023	5,023	1,833,425
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
472149	157,383	72,000	24,000	—

5.10.3. Landscape Equipment

Season	Unit	Value

Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	397,976	453	0.0330	0.0040	3,195,620
Apartments Mid Rise	397,303	453	0.0330	0.0040	1,200,968
High Turnover (Sit Down Restaurant)	1,563,364	453	0.0330	0.0040	4,547,023

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	401,764	453	0.0330	0.0040	3,146,424
Apartments Mid Rise	398,786	453	0.0330	0.0040	1,191,547
High Turnover (Sit Down Restaurant)	1,563,364	453	0.0330	0.0040	4,547,023

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	8,596,774	43,293,712
Apartments Mid Rise	701,024	0.00
High Turnover (Sit Down Restaurant)	14,569,618	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	8,596,774	43,293,712
Apartments Mid Rise	701,024	0.00
High Turnover (Sit Down Restaurant)	14,569,618	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	45.3	—
Apartments Mid Rise	90.4	—
High Turnover (Sit Down Restaurant)	571	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	45.3	—
Apartments Mid Rise	90.4	—
High Turnover (Sit Down Restaurant)	571	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
High Turnover (Sit Down Restaurant)	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
High Turnover (Sit Down Restaurant)	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
High Turnover (Sit Down Restaurant)	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
High Turnover (Sit Down Restaurant)	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
High Turnover (Sit Down Restaurant)	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
High Turnover (Sit Down Restaurant)	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	5.68	annual days of extreme heat
Extreme Precipitation	5.50	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	45.0
AQ-PM	66.1
AQ-DPM	96.2
Drinking Water	52.7
Lead Risk Housing	24.4
Pesticides	0.00
Toxic Releases	79.2
Traffic	68.7
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	25.1
Haz Waste Facilities/Generators	44.7
Impaired Water Bodies	66.7
Solid Waste	42.3
Sensitive Population	—
Asthma	35.8
Cardio-vascular	47.2
Low Birth Weights	7.17
Socioeconomic Factor Indicators	—
Education	20.9
Housing	50.7
Linguistic	30.0
Poverty	42.6
Unemployment	45.8

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	66.05928397
Employed	97.78005903
Median HI	50.49403311
Education	—
Bachelor's or higher	85.98742461
High school enrollment	100
Preschool enrollment	78.71166431
Transportation	—
Auto Access	15.29577826
Active commuting	83.42101886
Social	—
2-parent households	0.936738098
Voting	40.18991403
Neighborhood	—
Alcohol availability	4.516874118
Park access	81.35506224
Retail density	58.14192224
Supermarket access	94.25125112
Tree canopy	21.14718337
Housing	—
Homeownership	0.590273322
Housing habitability	26.43397921
Low-inc homeowner severe housing cost burden	99.12742205
Low-inc renter severe housing cost burden	68.71551392
Uncrowded housing	10.40677531
Health Outcomes	—

Insured adults	54.27948159
Arthritis	98.1
Asthma ER Admissions	59.4
High Blood Pressure	96.7
Cancer (excluding skin)	89.7
Asthma	83.3
Coronary Heart Disease	97.4
Chronic Obstructive Pulmonary Disease	97.2
Diagnosed Diabetes	95.7
Life Expectancy at Birth	81.8
Cognitively Disabled	93.6
Physically Disabled	98.1
Heart Attack ER Admissions	34.3
Mental Health Not Good	76.1
Chronic Kidney Disease	95.6
Obesity	77.3
Pedestrian Injuries	94.6
Physical Health Not Good	92.3
Stroke	96.9
Health Risk Behaviors	—
Binge Drinking	6.6
Current Smoker	70.9
No Leisure Time for Physical Activity	88.3
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	19.0
Elderly	98.6

English Speaking	73.8
Foreign-born	76.3
Outdoor Workers	35.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	0.9
Traffic Density	60.1
Traffic Access	87.4
Other Indices	—
Hardship	35.5
Other Decision Support	—
2016 Voting	48.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	39.0
Healthy Places Index Score for Project Location (b)	60.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Characteristics: Project Details	Updated characteristics screen to match project specific characteristics
Characteristics: Utility Information	Using statewide average electricity defaults to better estimate emissions for project area
Construction: Construction Phases	Adjusted construction schedule to match project needs
Construction: Off-Road Equipment	Adjust construction equipment mix for project needs
Construction: Trips and VMT	updated construction trip to match project needs
Operations: Hearths	removed hearths
Operations: Water and Waste Water	Adjusted electric intensity factor for Maui
Operations: Vehicle Data	Adjusted traffic data based on TIAR

Makena Mauka - Golf Detailed Report

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3.186. Architectural Coating (2030) - Mitigated

3.187. Architectural Coating (2031) - Unmitigated

3.188. Architectural Coating (2031) - Mitigated

3.189. Architectural Coating (2032) - Unmitigated

3.190. Architectural Coating (2032) - Mitigated

3.191. Architectural Coating (2033) - Unmitigated

3.192. Architectural Coating (2033) - Mitigated

3.193. Architectural Coating (2034) - Unmitigated

3.194. Architectural Coating (2034) - Mitigated

3.195. Architectural Coating (2035) - Unmitigated

3.196. Architectural Coating (2035) - Mitigated

3.197. Architectural Coating (2036) - Unmitigated

3.198. Architectural Coating (2036) - Mitigated

3.199. Architectural Coating (2037) - Unmitigated

3.200. Architectural Coating (2037) - Mitigated

3.201. Architectural Coating (2038) - Unmitigated

3.202. Architectural Coating (2038) - Mitigated

3.203. Architectural Coating (2039) - Unmitigated

3.204. Architectural Coating (2039) - Mitigated

3.205. Architectural Coating (2040) - Unmitigated

3.206. Architectural Coating (2040) - Mitigated

3.207. Architectural Coating (2041) - Unmitigated

3.208. Architectural Coating (2041) - Mitigated

3.209. Architectural Coating (2042) - Unmitigated

3.210. Architectural Coating (2042) - Mitigated

3.211. Architectural Coating (2043) - Unmitigated

3.212. Architectural Coating (2043) - Mitigated

3.213. Architectural Coating (2044) - Unmitigated

3.214. Architectural Coating (2044) - Mitigated

3.215. Architectural Coating (2045) - Unmitigated

3.216. Architectural Coating (2045) - Mitigated

3.217. Architectural Coating (2046) - Unmitigated

3.218. Architectural Coating (2046) - Mitigated

3.219. Architectural Coating (2047) - Unmitigated

3.220. Architectural Coating (2047) - Mitigated

3.221. Architectural Coating (2048) - Unmitigated

3.222. Architectural Coating (2048) - Mitigated

3.223. Architectural Coating (2049) - Unmitigated

3.224. Architectural Coating (2049) - Mitigated

3.225. Architectural Coating (2050) - Unmitigated

3.226. Architectural Coating (2050) - Mitigated

3.227. Architectural Coating (2051) - Unmitigated

3.228. Architectural Coating (2051) - Mitigated

3.229. Architectural Coating (2052) - Unmitigated

3.230. Architectural Coating (2052) - Mitigated

3.231. Architectural Coating (2053) - Unmitigated

3.232. Architectural Coating (2053) - Mitigated

3.233. Architectural Coating (2054) - Unmitigated

3.234. Architectural Coating (2054) - Mitigated

3.235. Architectural Coating (2055) - Unmitigated

3.236. Architectural Coating (2055) - Mitigated

3.237. Architectural Coating (2056) - Unmitigated

3.238. Architectural Coating (2056) - Mitigated

3.239. Architectural Coating (2057) - Unmitigated

3.240. Architectural Coating (2057) - Mitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.1.2. Mitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.2. Electricity Emissions By Land Use - Mitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.2.4. Natural Gas Emissions By Land Use - Mitigated

4.3. Area Emissions by Source

4.3.1. Unmitigated

4.3.2. Mitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.4.2. Mitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.5.2. Mitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.6.2. Mitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.7.2. Mitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.8.2. Mitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.9.2. Mitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.2.2. Mitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.3.2. Mitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.9.2. Mitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.10.4. Landscape Equipment - Mitigated

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.11.2. Mitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.12.2. Mitigated

5.13. Operational Waste Generation
5.13.1. Unmitigated
5.13.2. Mitigated
5.14. Operational Refrigeration and Air Conditioning Equipment
5.14.1. Unmitigated
5.14.2. Mitigated
5.15. Operational Off-Road Equipment
5.15.1. Unmitigated
5.15.2. Mitigated
5.16. Stationary Sources
5.16.1. Emergency Generators and Fire Pumps
5.16.2. Process Boilers
5.17. User Defined
5.18. Vegetation
5.18.1. Land Use Change
5.18.1.1. Unmitigated
5.18.1.2. Mitigated
5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated
5.18.1.2. Mitigated
5.18.2. Sequestration
5.18.2.1. Unmitigated
5.18.2.2. Mitigated
6. Climate Risk Detailed Report
6.1. Climate Risk Summary
6.2. Initial Climate Risk Scores
6.3. Adjusted Climate Risk Scores
6.4. Climate Risk Reduction Measures
7. Health and Equity Details
7.1. CalEnviroScreen 4.0 Scores
7.2. Healthy Places Index Scores
7.3. Overall Health & Equity Scores
7.4. Health & Equity Measures
7.5. Evaluation Scorecard
7.6. Health & Equity Custom Measures
8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Makena Mauka - Golf
Construction Start Date	1/4/2028
Operational Year	2050
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	Statewide
Windspeed (m/s)	15.0
Precipitation (days)	113
Location	34.022579521235755, -118.40535118073069
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4454
EDFZ	16
Electric Utility	Statewide Average
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Golf Course	18.0	Hole	126	0.00	2,500,000	2,500,000	—	—

Health Club	63.0	1000sqft	1.45	63,000	0.00	—	—	Golf Maintenance, Staff Center, Golf Operations, Receiving Area

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-9	Use Dust Suppressants
Construction	C-10-A	Water Exposed Surfaces

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.41	5.39	45.0	52.5	0.09	1.77	28.9	30.7	1.63	14.0	15.6	—	10,907	10,907	0.40	0.33	6.20	11,023
Mit.	6.41	5.39	45.0	52.5	0.09	1.77	12.0	13.8	1.63	5.64	7.27	—	10,907	10,907	0.40	0.33	6.20	11,023
% Reduced	—	—	—	—	—	—	59%	55%	—	60%	53%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.37	5.38	45.1	51.6	0.09	1.77	28.9	30.7	1.63	14.0	15.6	—	10,832	10,832	0.40	0.33	0.16	10,941
Mit.	6.37	5.38	45.1	51.6	0.09	1.77	12.0	13.8	1.63	5.64	7.27	—	10,832	10,832	0.40	0.33	0.16	10,941
% Reduced	—	—	—	—	—	—	59%	55%	—	60%	53%	—	—	—	—	—	—	—

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.53	3.83	32.1	36.8	0.06	1.26	20.5	21.6	1.16	9.96	11.1	—	7,727	7,727	0.29	0.24	1.91	7,807
Mit.	4.53	3.83	32.1	36.8	0.06	1.26	8.50	9.71	1.16	4.02	5.16	—	7,727	7,727	0.29	0.24	1.91	7,807
% Reduced	—	—	—	—	—	—	59%	55%	—	60%	53%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.83	0.70	5.86	6.72	0.01	0.23	3.74	3.95	0.21	1.82	2.02	—	1,279	1,279	0.05	0.04	0.32	1,292
Mit.	0.83	0.70	5.86	6.72	0.01	0.23	1.55	1.77	0.21	0.73	0.94	—	1,279	1,279	0.05	0.04	0.32	1,292
% Reduced	—	—	—	—	—	—	59%	55%	—	60%	53%	—	—	—	—	—	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	40.0	40.0	100	40.0	—	—	15.0	—	—	10.0	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—
Mit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	6.41	5.39	45.0	52.5	0.09	1.77	28.9	30.7	1.63	14.0	15.6	—	10,907	10,907	0.40	0.33	6.20	11,023
2029	6.21	5.26	42.6	51.8	0.09	1.67	28.9	30.6	1.54	14.0	15.5	—	10,846	10,846	0.40	0.32	5.61	10,958
2030	6.07	5.11	41.4	52.0	0.09	1.63	28.9	30.6	1.49	14.0	15.4	—	10,791	10,791	0.39	0.32	5.05	10,902
2031	5.95	5.01	40.0	51.0	0.09	1.58	28.9	30.5	1.45	14.0	15.4	—	10,739	10,739	0.39	0.28	4.52	10,837
2032	5.64	4.75	37.1	47.8	0.09	1.41	28.9	30.3	1.29	14.0	15.3	—	10,690	10,690	0.39	0.28	4.01	10,787

2033	5.46	4.62	35.5	45.8	0.09	1.31	28.9	30.2	1.20	14.0	15.2	—	10,645	10,645	0.39	0.27	3.52	10,739
2034	5.34	4.52	34.5	45.2	0.09	1.24	28.9	30.2	1.14	14.0	15.1	—	10,604	10,604	0.39	0.27	3.08	10,697
2035	5.15	4.36	32.6	43.4	0.09	1.12	28.9	30.1	1.03	14.0	15.0	—	10,568	10,568	0.38	0.26	2.66	10,658
2036	4.94	4.20	30.8	41.7	0.09	1.02	28.9	30.0	0.94	14.0	14.9	—	10,535	10,535	0.37	0.26	2.29	10,625
2037	4.93	4.18	30.8	41.9	0.09	1.03	28.9	30.0	0.95	14.0	14.9	—	10,507	10,507	0.37	0.26	1.96	10,596
2038	4.72	4.01	28.6	39.6	0.09	0.93	28.9	29.9	0.86	14.0	14.8	—	10,482	10,482	0.37	0.25	1.68	10,568
2039	4.64	3.94	27.8	39.0	0.09	0.90	28.9	29.8	0.83	14.0	14.8	—	10,461	10,461	0.37	0.25	1.43	10,547
2040	4.60	3.87	27.6	38.8	0.09	0.88	28.9	29.8	0.81	14.0	14.8	—	10,442	10,442	0.37	0.25	1.22	10,527
2041	4.40	3.70	26.0	37.8	0.09	0.78	28.9	29.7	0.72	14.0	14.7	—	10,426	10,426	0.37	0.25	1.04	10,511
2042	4.35	3.66	25.4	37.1	0.09	0.75	28.9	29.7	0.69	14.0	14.6	—	10,413	10,413	0.37	0.25	0.89	10,498
2043	4.32	3.64	25.5	37.0	0.09	0.74	28.9	29.7	0.68	14.0	14.6	—	10,401	10,401	0.36	0.24	0.76	10,482
2044	4.16	3.51	24.0	36.0	0.09	0.66	28.9	29.6	0.60	14.0	14.6	—	10,391	10,391	0.36	0.24	0.66	10,472
2045	4.15	3.50	23.9	36.0	0.09	0.65	28.9	29.6	0.60	14.0	14.6	—	10,383	10,383	0.36	0.24	0.57	10,463
2046	4.01	3.38	22.2	35.3	0.09	0.58	28.9	29.5	0.53	14.0	14.5	—	10,376	10,376	0.36	0.24	0.49	10,457
2047	3.95	3.36	21.7	35.3	0.09	0.56	28.9	29.5	0.52	14.0	14.5	—	10,370	10,370	0.36	0.24	0.42	10,451
2048	3.92	3.33	21.4	34.3	0.09	0.55	28.9	29.5	0.50	14.0	14.5	—	10,365	10,365	0.36	0.24	0.36	10,446
2049	3.85	3.28	20.2	34.2	0.09	0.51	28.9	29.4	0.47	14.0	14.4	—	10,361	10,361	0.36	0.24	0.32	10,442
2050	3.82	3.24	19.5	34.1	0.09	0.48	28.9	29.4	0.44	14.0	14.4	—	10,358	10,358	0.36	0.24	0.28	10,439
2051	0.23	0.23	—	—	—	—	28.8	28.8	—	13.9	13.9	—	0.00	0.00	0.00	0.00	—	0.00
2052	0.23	0.23	—	—	—	—	28.8	28.8	—	13.9	13.9	—	0.00	0.00	0.00	0.00	—	0.00
2053	0.23	0.23	—	—	—	—	28.8	28.8	—	13.9	13.9	—	0.00	0.00	0.00	0.00	—	0.00
2054	0.23	0.23	—	—	—	—	28.8	28.8	—	13.9	13.9	—	0.00	0.00	0.00	0.00	—	0.00
2055	0.23	0.23	—	—	—	—	28.8	28.8	—	13.9	13.9	—	0.00	0.00	0.00	0.00	—	0.00
2056	0.23	0.23	—	—	—	—	28.8	28.8	—	13.9	13.9	—	0.00	0.00	0.00	0.00	—	0.00
2057	0.23	0.23	—	—	—	—	28.8	28.8	—	13.9	13.9	—	0.00	0.00	0.00	0.00	—	0.00
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	6.37	5.38	45.1	51.6	0.09	1.77	28.9	30.7	1.63	14.0	15.6	—	10,832	10,832	0.40	0.33	0.16	10,941

2029	6.20	5.21	42.7	50.9	0.09	1.67	28.9	30.6	1.54	14.0	15.5	—	10,772	10,772	0.40	0.32	0.15	10,879
2030	6.06	5.10	41.5	51.2	0.09	1.63	28.9	30.6	1.49	14.0	15.4	—	10,718	10,718	0.39	0.32	0.13	10,825
2031	5.94	4.99	40.1	50.2	0.09	1.58	28.9	30.5	1.45	14.0	15.4	—	10,667	10,667	0.39	0.31	0.12	10,770
2032	5.63	4.74	37.2	47.1	0.09	1.41	28.9	30.3	1.29	14.0	15.3	—	10,619	10,619	0.39	0.31	0.10	10,722
2033	5.45	4.61	35.6	45.1	0.09	1.31	28.9	30.2	1.20	14.0	15.2	—	10,575	10,575	0.39	0.27	0.09	10,666
2034	5.33	4.51	34.7	44.5	0.09	1.24	28.9	30.2	1.14	14.0	15.1	—	10,535	10,535	0.39	0.27	0.08	10,626
2035	5.14	4.35	32.7	42.8	0.09	1.12	28.9	30.1	1.03	14.0	15.0	—	10,500	10,500	0.38	0.26	0.07	10,587
2036	4.94	4.19	31.0	41.1	0.09	1.02	28.9	30.0	0.94	14.0	14.9	—	10,468	10,468	0.38	0.26	0.06	10,556
2037	4.92	4.17	30.9	41.3	0.09	1.03	28.9	30.0	0.95	14.0	14.9	—	10,440	10,440	0.38	0.26	0.05	10,527
2038	4.72	4.01	28.7	39.0	0.09	0.93	28.9	29.9	0.86	14.0	14.8	—	10,416	10,416	0.38	0.25	0.04	10,501
2039	4.64	3.93	27.9	38.5	0.09	0.90	28.9	29.8	0.83	14.0	14.8	—	10,395	10,395	0.37	0.25	0.04	10,480
2040	4.60	3.87	27.7	38.3	0.09	0.88	28.9	29.8	0.81	14.0	14.8	—	10,377	10,377	0.37	0.25	0.03	10,461
2041	4.39	3.70	26.0	37.3	0.09	0.78	28.9	29.7	0.72	14.0	14.7	—	10,361	10,361	0.37	0.25	0.03	10,446
2042	4.35	3.65	25.4	36.6	0.09	0.75	28.9	29.7	0.69	14.0	14.6	—	10,348	10,348	0.37	0.25	0.02	10,432
2043	4.32	3.64	25.6	36.5	0.09	0.74	28.9	29.7	0.68	14.0	14.6	—	10,336	10,336	0.36	0.24	0.02	10,418
2044	4.15	3.50	24.1	35.5	0.09	0.66	28.9	29.6	0.60	14.0	14.6	—	10,327	10,327	0.36	0.24	0.02	10,408
2045	4.11	3.49	23.9	35.5	0.09	0.65	28.9	29.6	0.60	14.0	14.6	—	10,319	10,319	0.36	0.24	0.01	10,400
2046	3.97	3.38	22.2	34.8	0.09	0.58	28.9	29.5	0.53	14.0	14.5	—	10,312	10,312	0.36	0.24	0.01	10,393
2047	3.94	3.35	21.8	34.8	0.09	0.56	28.9	29.5	0.52	14.0	14.5	—	10,306	10,306	0.36	0.24	0.01	10,388
2048	3.91	3.33	21.4	33.8	0.09	0.55	28.9	29.5	0.50	14.0	14.5	—	10,301	10,301	0.36	0.24	0.01	10,382
2049	3.85	3.27	20.3	33.7	0.09	0.51	28.9	29.4	0.47	14.0	14.4	—	10,298	10,298	0.36	0.24	0.01	10,379
2050	3.81	3.24	19.5	33.6	0.09	0.48	28.9	29.4	0.44	14.0	14.4	—	10,295	10,295	0.36	0.24	0.01	10,376
2051	0.23	0.23	—	—	—	—	28.8	28.8	—	13.9	13.9	—	0.00	0.00	0.00	0.00	—	0.00
2052	0.23	0.23	—	—	—	—	28.8	28.8	—	13.9	13.9	—	0.00	0.00	0.00	0.00	—	0.00
2053	0.23	0.23	—	—	—	—	28.8	28.8	—	13.9	13.9	—	0.00	0.00	0.00	0.00	—	0.00
2054	0.23	0.23	—	—	—	—	28.8	28.8	—	13.9	13.9	—	0.00	0.00	0.00	0.00	—	0.00
2055	0.23	0.23	—	—	—	—	28.8	28.8	—	13.9	13.9	—	0.00	0.00	0.00	0.00	—	0.00
2056	0.23	0.23	—	—	—	—	28.8	28.8	—	13.9	13.9	—	0.00	0.00	0.00	0.00	—	0.00

2057	0.23	0.23	—	—	—	—	28.8	28.8	—	13.9	13.9	—	0.00	0.00	0.00	0.00	—	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	4.53	3.83	32.1	36.8	0.06	1.26	20.4	21.6	1.16	9.91	11.1	—	7,727	7,727	0.29	0.24	1.91	7,807
2029	4.43	3.75	30.5	36.5	0.06	1.19	20.4	21.6	1.10	9.94	11.0	—	7,705	7,705	0.29	0.23	1.73	7,783
2030	4.33	3.64	29.6	36.6	0.06	1.16	20.4	21.6	1.06	9.94	11.0	—	7,667	7,667	0.28	0.23	1.56	7,744
2031	4.24	3.57	28.6	36.0	0.06	1.13	20.4	21.6	1.04	9.94	11.0	—	7,630	7,630	0.28	0.22	1.39	7,705
2032	4.04	3.40	26.7	33.8	0.06	1.01	20.5	21.5	0.93	9.96	10.9	—	7,616	7,616	0.28	0.20	1.24	7,684
2033	3.89	3.30	25.4	32.3	0.06	0.93	20.4	21.4	0.86	9.94	10.8	—	7,564	7,564	0.28	0.19	1.09	7,630
2034	3.81	3.23	24.7	31.9	0.06	0.88	20.4	21.3	0.81	9.94	10.7	—	7,535	7,535	0.28	0.19	0.95	7,601
2035	3.67	3.11	23.3	30.7	0.06	0.80	20.4	21.2	0.74	9.94	10.7	—	7,510	7,510	0.27	0.19	0.82	7,573
2036	3.54	3.00	22.1	29.5	0.06	0.73	20.5	21.2	0.68	9.96	10.6	—	7,508	7,508	0.27	0.19	0.71	7,571
2037	3.52	2.98	22.0	29.6	0.06	0.73	20.4	21.2	0.68	9.94	10.6	—	7,467	7,467	0.27	0.19	0.61	7,530
2038	3.37	2.86	20.5	27.9	0.06	0.67	20.4	21.1	0.61	9.94	10.5	—	7,450	7,450	0.27	0.18	0.52	7,511
2039	3.31	2.81	19.9	27.6	0.06	0.64	20.4	21.1	0.59	9.94	10.5	—	7,435	7,435	0.27	0.18	0.44	7,496
2040	3.29	2.77	19.9	27.5	0.06	0.63	20.5	21.1	0.58	9.96	10.5	—	7,442	7,442	0.27	0.18	0.38	7,503
2041	3.14	2.64	18.6	26.7	0.06	0.55	20.4	21.0	0.51	9.94	10.4	—	7,411	7,411	0.27	0.18	0.32	7,471
2042	3.10	2.61	18.2	26.2	0.06	0.53	20.4	21.0	0.49	9.94	10.4	—	7,401	7,401	0.27	0.18	0.27	7,461
2043	3.08	2.60	18.3	26.1	0.06	0.53	20.4	21.0	0.49	9.94	10.4	—	7,393	7,393	0.26	0.17	0.24	7,451
2044	2.98	2.51	17.2	25.5	0.06	0.47	20.5	21.0	0.43	9.96	10.4	—	7,406	7,406	0.26	0.17	0.20	7,464
2045	2.94	2.50	17.1	25.4	0.06	0.46	20.4	20.9	0.43	9.94	10.4	—	7,380	7,380	0.26	0.17	0.17	7,438
2046	2.84	2.41	15.9	24.9	0.06	0.41	20.4	20.8	0.38	9.94	10.3	—	7,375	7,375	0.26	0.17	0.15	7,433
2047	2.82	2.39	15.5	24.9	0.06	0.40	20.4	20.8	0.37	9.94	10.3	—	7,371	7,371	0.26	0.17	0.13	7,429
2048	2.80	2.38	15.3	24.3	0.06	0.39	20.5	20.9	0.36	9.96	10.3	—	7,388	7,388	0.26	0.17	0.11	7,446
2049	2.75	2.34	14.5	24.1	0.06	0.36	20.4	20.8	0.33	9.94	10.3	—	7,365	7,365	0.26	0.17	0.10	7,423
2050	2.72	2.31	13.9	24.1	0.06	0.34	20.4	20.8	0.32	9.94	10.3	—	7,363	7,363	0.26	0.17	0.08	7,421
2051	0.17	0.17	—	—	—	—	20.3	20.3	—	9.91	9.91	—	0.00	0.00	0.00	0.00	—	0.00
2052	0.17	0.17	—	—	—	—	20.4	20.4	—	9.94	9.94	—	0.00	0.00	0.00	0.00	—	0.00
2053	0.17	0.17	—	—	—	—	20.3	20.3	—	9.91	9.91	—	0.00	0.00	0.00	0.00	—	0.00

2054	0.17	0.17	—	—	—	—	20.3	20.3	—	9.91	9.91	—	0.00	0.00	0.00	0.00	—	0.00
2055	0.17	0.17	—	—	—	—	20.3	20.3	—	9.91	9.91	—	0.00	0.00	0.00	0.00	—	0.00
2056	0.17	0.17	—	—	—	—	20.4	20.4	—	9.94	9.94	—	0.00	0.00	0.00	0.00	—	0.00
2057	0.16	0.16	—	—	—	—	19.7	19.7	—	9.64	9.64	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.83	0.70	5.86	6.72	0.01	0.23	3.72	3.95	0.21	1.81	2.02	—	1,279	1,279	0.05	0.04	0.32	1,292
2029	0.81	0.68	5.57	6.66	0.01	0.22	3.73	3.95	0.20	1.81	2.01	—	1,276	1,276	0.05	0.04	0.29	1,289
2030	0.79	0.66	5.41	6.69	0.01	0.21	3.73	3.94	0.19	1.81	2.01	—	1,269	1,269	0.05	0.04	0.26	1,282
2031	0.77	0.65	5.23	6.56	0.01	0.21	3.73	3.94	0.19	1.81	2.00	—	1,263	1,263	0.05	0.04	0.23	1,276
2032	0.74	0.62	4.86	6.18	0.01	0.18	3.74	3.92	0.17	1.82	1.99	—	1,261	1,261	0.05	0.03	0.21	1,272
2033	0.71	0.60	4.63	5.90	0.01	0.17	3.73	3.90	0.16	1.81	1.97	—	1,252	1,252	0.05	0.03	0.18	1,263
2034	0.70	0.59	4.52	5.82	0.01	0.16	3.73	3.89	0.15	1.81	1.96	—	1,248	1,248	0.05	0.03	0.16	1,258
2035	0.67	0.57	4.26	5.59	0.01	0.15	3.73	3.87	0.13	1.81	1.95	—	1,243	1,243	0.04	0.03	0.14	1,254
2036	0.65	0.55	4.04	5.39	0.01	0.13	3.74	3.87	0.12	1.82	1.94	—	1,243	1,243	0.04	0.03	0.12	1,253
2037	0.64	0.54	4.02	5.39	0.01	0.13	3.73	3.86	0.12	1.81	1.94	—	1,236	1,236	0.04	0.03	0.10	1,247
2038	0.62	0.52	3.73	5.10	0.01	0.12	3.73	3.85	0.11	1.81	1.93	—	1,233	1,233	0.04	0.03	0.09	1,243
2039	0.60	0.51	3.64	5.03	0.01	0.12	3.73	3.85	0.11	1.81	1.92	—	1,231	1,231	0.04	0.03	0.07	1,241
2040	0.60	0.51	3.62	5.01	0.01	0.12	3.74	3.85	0.11	1.82	1.92	—	1,232	1,232	0.04	0.03	0.06	1,242
2041	0.57	0.48	3.39	4.86	0.01	0.10	3.73	3.83	0.09	1.81	1.91	—	1,227	1,227	0.04	0.03	0.05	1,237
2042	0.57	0.48	3.31	4.78	0.01	0.10	3.73	3.83	0.09	1.81	1.90	—	1,225	1,225	0.04	0.03	0.05	1,235
2043	0.56	0.47	3.33	4.76	0.01	0.10	3.73	3.83	0.09	1.81	1.90	—	1,224	1,224	0.04	0.03	0.04	1,234
2044	0.54	0.46	3.14	4.65	0.01	0.09	3.74	3.82	0.08	1.82	1.90	—	1,226	1,226	0.04	0.03	0.03	1,236
2045	0.54	0.46	3.12	4.63	0.01	0.08	3.73	3.81	0.08	1.81	1.89	—	1,222	1,222	0.04	0.03	0.03	1,231
2046	0.52	0.44	2.90	4.55	0.01	0.07	3.73	3.80	0.07	1.81	1.88	—	1,221	1,221	0.04	0.03	0.02	1,231
2047	0.51	0.44	2.84	4.55	0.01	0.07	3.73	3.80	0.07	1.81	1.88	—	1,220	1,220	0.04	0.03	0.02	1,230
2048	0.51	0.43	2.80	4.43	0.01	0.07	3.74	3.81	0.07	1.82	1.88	—	1,223	1,223	0.04	0.03	0.02	1,233
2049	0.50	0.43	2.64	4.40	0.01	0.07	3.73	3.79	0.06	1.81	1.87	—	1,219	1,219	0.04	0.03	0.02	1,229
2050	0.50	0.42	2.54	4.39	0.01	0.06	3.73	3.79	0.06	1.81	1.87	—	1,219	1,219	0.04	0.03	0.01	1,229

2051	0.03	0.03	—	—	—	—	3.71	3.71	—	1.81	1.81	—	0.00	0.00	0.00	0.00	—	0.00
2052	0.03	0.03	—	—	—	—	3.72	3.72	—	1.81	1.81	—	0.00	0.00	0.00	0.00	—	0.00
2053	0.03	0.03	—	—	—	—	3.71	3.71	—	1.81	1.81	—	0.00	0.00	0.00	0.00	—	0.00
2054	0.03	0.03	—	—	—	—	3.71	3.71	—	1.81	1.81	—	0.00	0.00	0.00	0.00	—	0.00
2055	0.03	0.03	—	—	—	—	3.71	3.71	—	1.81	1.81	—	0.00	0.00	0.00	0.00	—	0.00
2056	0.03	0.03	—	—	—	—	3.72	3.72	—	1.81	1.81	—	0.00	0.00	0.00	0.00	—	0.00
2057	0.03	0.03	—	—	—	—	3.60	3.60	—	1.76	1.76	—	0.00	0.00	0.00	0.00	—	0.00

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	6.41	5.39	45.0	52.5	0.09	1.77	12.0	13.8	1.63	5.64	7.27	—	10,907	10,907	0.40	0.33	6.20	11,023
2029	6.21	5.26	42.6	51.8	0.09	1.67	12.0	13.7	1.54	5.64	7.18	—	10,846	10,846	0.40	0.32	5.61	10,958
2030	6.07	5.11	41.4	52.0	0.09	1.63	12.0	13.6	1.49	5.64	7.13	—	10,791	10,791	0.39	0.32	5.05	10,902
2031	5.95	5.01	40.0	51.0	0.09	1.58	12.0	13.6	1.45	5.64	7.09	—	10,739	10,739	0.39	0.28	4.52	10,837
2032	5.64	4.75	37.1	47.8	0.09	1.41	12.0	13.4	1.29	5.64	6.94	—	10,690	10,690	0.39	0.28	4.01	10,787
2033	5.46	4.62	35.5	45.8	0.09	1.31	12.0	13.3	1.20	5.64	6.85	—	10,645	10,645	0.39	0.27	3.52	10,739
2034	5.34	4.52	34.5	45.2	0.09	1.24	12.0	13.2	1.14	5.64	6.78	—	10,604	10,604	0.39	0.27	3.08	10,697
2035	5.15	4.36	32.6	43.4	0.09	1.12	12.0	13.1	1.03	5.64	6.68	—	10,568	10,568	0.38	0.26	2.66	10,658
2036	4.94	4.20	30.8	41.7	0.09	1.02	12.0	13.0	0.94	5.64	6.59	—	10,535	10,535	0.37	0.26	2.29	10,625
2037	4.93	4.18	30.8	41.9	0.09	1.03	12.0	13.0	0.95	5.64	6.59	—	10,507	10,507	0.37	0.26	1.96	10,596
2038	4.72	4.01	28.6	39.6	0.09	0.93	12.0	12.9	0.86	5.64	6.50	—	10,482	10,482	0.37	0.25	1.68	10,568
2039	4.64	3.94	27.8	39.0	0.09	0.90	12.0	12.9	0.83	5.64	6.47	—	10,461	10,461	0.37	0.25	1.43	10,547
2040	4.60	3.87	27.6	38.8	0.09	0.88	12.0	12.9	0.81	5.64	6.46	—	10,442	10,442	0.37	0.25	1.22	10,527
2041	4.40	3.70	26.0	37.8	0.09	0.78	12.0	12.8	0.72	5.64	6.36	—	10,426	10,426	0.37	0.25	1.04	10,511
2042	4.35	3.66	25.4	37.1	0.09	0.75	12.0	12.7	0.69	5.64	6.33	—	10,413	10,413	0.37	0.25	0.89	10,498

2043	4.32	3.64	25.5	37.0	0.09	0.74	12.0	12.7	0.68	5.64	6.33	—	10,401	10,401	0.36	0.24	0.76	10,482
2044	4.16	3.51	24.0	36.0	0.09	0.66	12.0	12.7	0.60	5.64	6.25	—	10,391	10,391	0.36	0.24	0.66	10,472
2045	4.15	3.50	23.9	36.0	0.09	0.65	12.0	12.6	0.60	5.64	6.24	—	10,383	10,383	0.36	0.24	0.57	10,463
2046	4.01	3.38	22.2	35.3	0.09	0.58	12.0	12.6	0.53	5.64	6.17	—	10,376	10,376	0.36	0.24	0.49	10,457
2047	3.95	3.36	21.7	35.3	0.09	0.56	12.0	12.6	0.52	5.64	6.16	—	10,370	10,370	0.36	0.24	0.42	10,451
2048	3.92	3.33	21.4	34.3	0.09	0.55	12.0	12.5	0.50	5.64	6.15	—	10,365	10,365	0.36	0.24	0.36	10,446
2049	3.85	3.28	20.2	34.2	0.09	0.51	12.0	12.5	0.47	5.64	6.11	—	10,361	10,361	0.36	0.24	0.32	10,442
2050	3.82	3.24	19.5	34.1	0.09	0.48	12.0	12.5	0.44	5.64	6.09	—	10,358	10,358	0.36	0.24	0.28	10,439
2051	0.23	0.23	—	—	—	—	11.8	11.8	—	5.61	5.61	—	0.00	0.00	0.00	0.00	—	0.00
2052	0.23	0.23	—	—	—	—	11.8	11.8	—	5.61	5.61	—	0.00	0.00	0.00	0.00	—	0.00
2053	0.23	0.23	—	—	—	—	11.8	11.8	—	5.61	5.61	—	0.00	0.00	0.00	0.00	—	0.00
2054	0.23	0.23	—	—	—	—	11.8	11.8	—	5.61	5.61	—	0.00	0.00	0.00	0.00	—	0.00
2055	0.23	0.23	—	—	—	—	11.8	11.8	—	5.61	5.61	—	0.00	0.00	0.00	0.00	—	0.00
2056	0.23	0.23	—	—	—	—	11.8	11.8	—	5.61	5.61	—	0.00	0.00	0.00	0.00	—	0.00
2057	0.23	0.23	—	—	—	—	11.8	11.8	—	5.61	5.61	—	0.00	0.00	0.00	0.00	—	0.00
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	6.37	5.38	45.1	51.6	0.09	1.77	12.0	13.8	1.63	5.64	7.27	—	10,832	10,832	0.40	0.33	0.16	10,941
2029	6.20	5.21	42.7	50.9	0.09	1.67	12.0	13.7	1.54	5.64	7.18	—	10,772	10,772	0.40	0.32	0.15	10,879
2030	6.06	5.10	41.5	51.2	0.09	1.63	12.0	13.6	1.49	5.64	7.13	—	10,718	10,718	0.39	0.32	0.13	10,825
2031	5.94	4.99	40.1	50.2	0.09	1.58	12.0	13.6	1.45	5.64	7.09	—	10,667	10,667	0.39	0.31	0.12	10,770
2032	5.63	4.74	37.2	47.1	0.09	1.41	12.0	13.4	1.29	5.64	6.94	—	10,619	10,619	0.39	0.31	0.10	10,722
2033	5.45	4.61	35.6	45.1	0.09	1.31	12.0	13.3	1.20	5.64	6.85	—	10,575	10,575	0.39	0.27	0.09	10,666
2034	5.33	4.51	34.7	44.5	0.09	1.24	12.0	13.2	1.14	5.64	6.78	—	10,535	10,535	0.39	0.27	0.08	10,626
2035	5.14	4.35	32.7	42.8	0.09	1.12	12.0	13.1	1.03	5.64	6.68	—	10,500	10,500	0.38	0.26	0.07	10,587
2036	4.94	4.19	31.0	41.1	0.09	1.02	12.0	13.0	0.94	5.64	6.59	—	10,468	10,468	0.38	0.26	0.06	10,556
2037	4.92	4.17	30.9	41.3	0.09	1.03	12.0	13.0	0.95	5.64	6.59	—	10,440	10,440	0.38	0.26	0.05	10,527
2038	4.72	4.01	28.7	39.0	0.09	0.93	12.0	12.9	0.86	5.64	6.50	—	10,416	10,416	0.38	0.25	0.04	10,501

2039	4.64	3.93	27.9	38.5	0.09	0.90	12.0	12.9	0.83	5.64	6.47	—	10,395	10,395	0.37	0.25	0.04	10,480
2040	4.60	3.87	27.7	38.3	0.09	0.88	12.0	12.9	0.81	5.64	6.46	—	10,377	10,377	0.37	0.25	0.03	10,461
2041	4.39	3.70	26.0	37.3	0.09	0.78	12.0	12.8	0.72	5.64	6.36	—	10,361	10,361	0.37	0.25	0.03	10,446
2042	4.35	3.65	25.4	36.6	0.09	0.75	12.0	12.7	0.69	5.64	6.33	—	10,348	10,348	0.37	0.25	0.02	10,432
2043	4.32	3.64	25.6	36.5	0.09	0.74	12.0	12.7	0.68	5.64	6.33	—	10,336	10,336	0.36	0.24	0.02	10,418
2044	4.15	3.50	24.1	35.5	0.09	0.66	12.0	12.7	0.60	5.64	6.25	—	10,327	10,327	0.36	0.24	0.02	10,408
2045	4.11	3.49	23.9	35.5	0.09	0.65	12.0	12.6	0.60	5.64	6.24	—	10,319	10,319	0.36	0.24	0.01	10,400
2046	3.97	3.38	22.2	34.8	0.09	0.58	12.0	12.6	0.53	5.64	6.17	—	10,312	10,312	0.36	0.24	0.01	10,393
2047	3.94	3.35	21.8	34.8	0.09	0.56	12.0	12.6	0.52	5.64	6.16	—	10,306	10,306	0.36	0.24	0.01	10,388
2048	3.91	3.33	21.4	33.8	0.09	0.55	12.0	12.5	0.50	5.64	6.15	—	10,301	10,301	0.36	0.24	0.01	10,382
2049	3.85	3.27	20.3	33.7	0.09	0.51	12.0	12.5	0.47	5.64	6.11	—	10,298	10,298	0.36	0.24	0.01	10,379
2050	3.81	3.24	19.5	33.6	0.09	0.48	12.0	12.5	0.44	5.64	6.09	—	10,295	10,295	0.36	0.24	0.01	10,376
2051	0.23	0.23	—	—	—	—	11.8	11.8	—	5.61	5.61	—	0.00	0.00	0.00	0.00	—	0.00
2052	0.23	0.23	—	—	—	—	11.8	11.8	—	5.61	5.61	—	0.00	0.00	0.00	0.00	—	0.00
2053	0.23	0.23	—	—	—	—	11.8	11.8	—	5.61	5.61	—	0.00	0.00	0.00	0.00	—	0.00
2054	0.23	0.23	—	—	—	—	11.8	11.8	—	5.61	5.61	—	0.00	0.00	0.00	0.00	—	0.00
2055	0.23	0.23	—	—	—	—	11.8	11.8	—	5.61	5.61	—	0.00	0.00	0.00	0.00	—	0.00
2056	0.23	0.23	—	—	—	—	11.8	11.8	—	5.61	5.61	—	0.00	0.00	0.00	0.00	—	0.00
2057	0.23	0.23	—	—	—	—	11.8	11.8	—	5.61	5.61	—	0.00	0.00	0.00	0.00	—	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	4.53	3.83	32.1	36.8	0.06	1.26	8.45	9.71	1.16	4.00	5.16	—	7,727	7,727	0.29	0.24	1.91	7,807
2029	4.43	3.75	30.5	36.5	0.06	1.19	8.47	9.67	1.10	4.01	5.11	—	7,705	7,705	0.29	0.23	1.73	7,783
2030	4.33	3.64	29.6	36.6	0.06	1.16	8.47	9.64	1.06	4.01	5.07	—	7,667	7,667	0.28	0.23	1.56	7,744
2031	4.24	3.57	28.6	36.0	0.06	1.13	8.47	9.61	1.04	4.01	5.05	—	7,630	7,630	0.28	0.22	1.39	7,705
2032	4.04	3.40	26.7	33.8	0.06	1.01	8.50	9.51	0.93	4.02	4.95	—	7,616	7,616	0.28	0.20	1.24	7,684
2033	3.89	3.30	25.4	32.3	0.06	0.93	8.47	9.41	0.86	4.01	4.87	—	7,564	7,564	0.28	0.19	1.09	7,630
2034	3.81	3.23	24.7	31.9	0.06	0.88	8.47	9.36	0.81	4.01	4.82	—	7,535	7,535	0.28	0.19	0.95	7,601
2035	3.67	3.11	23.3	30.7	0.06	0.80	8.47	9.27	0.74	4.01	4.75	—	7,510	7,510	0.27	0.19	0.82	7,573

2036	3.54	3.00	22.1	29.5	0.06	0.73	8.50	9.23	0.68	4.02	4.70	—	7,508	7,508	0.27	0.19	0.71	7,571
2037	3.52	2.98	22.0	29.6	0.06	0.73	8.47	9.21	0.68	4.01	4.69	—	7,467	7,467	0.27	0.19	0.61	7,530
2038	3.37	2.86	20.5	27.9	0.06	0.67	8.47	9.14	0.61	4.01	4.62	—	7,450	7,450	0.27	0.18	0.52	7,511
2039	3.31	2.81	19.9	27.6	0.06	0.64	8.47	9.11	0.59	4.01	4.60	—	7,435	7,435	0.27	0.18	0.44	7,496
2040	3.29	2.77	19.9	27.5	0.06	0.63	8.50	9.13	0.58	4.02	4.60	—	7,442	7,442	0.27	0.18	0.38	7,503
2041	3.14	2.64	18.6	26.7	0.06	0.55	8.47	9.03	0.51	4.01	4.52	—	7,411	7,411	0.27	0.18	0.32	7,471
2042	3.10	2.61	18.2	26.2	0.06	0.53	8.47	9.01	0.49	4.01	4.50	—	7,401	7,401	0.27	0.18	0.27	7,461
2043	3.08	2.60	18.3	26.1	0.06	0.53	8.47	9.00	0.49	4.01	4.50	—	7,393	7,393	0.26	0.17	0.24	7,451
2044	2.98	2.51	17.2	25.5	0.06	0.47	8.50	8.97	0.43	4.02	4.46	—	7,406	7,406	0.26	0.17	0.20	7,464
2045	2.94	2.50	17.1	25.4	0.06	0.46	8.47	8.94	0.43	4.01	4.44	—	7,380	7,380	0.26	0.17	0.17	7,438
2046	2.84	2.41	15.9	24.9	0.06	0.41	8.47	8.88	0.38	4.01	4.39	—	7,375	7,375	0.26	0.17	0.15	7,433
2047	2.82	2.39	15.5	24.9	0.06	0.40	8.47	8.87	0.37	4.01	4.38	—	7,371	7,371	0.26	0.17	0.13	7,429
2048	2.80	2.38	15.3	24.3	0.06	0.39	8.50	8.89	0.36	4.02	4.38	—	7,388	7,388	0.26	0.17	0.11	7,446
2049	2.75	2.34	14.5	24.1	0.06	0.36	8.47	8.84	0.33	4.01	4.34	—	7,365	7,365	0.26	0.17	0.10	7,423
2050	2.72	2.31	13.9	24.1	0.06	0.34	8.47	8.82	0.32	4.01	4.33	—	7,363	7,363	0.26	0.17	0.08	7,421
2051	0.17	0.17	—	—	—	—	8.35	8.35	—	3.98	3.98	—	0.00	0.00	0.00	0.00	—	0.00
2052	0.17	0.17	—	—	—	—	8.37	8.37	—	3.99	3.99	—	0.00	0.00	0.00	0.00	—	0.00
2053	0.17	0.17	—	—	—	—	8.35	8.35	—	3.98	3.98	—	0.00	0.00	0.00	0.00	—	0.00
2054	0.17	0.17	—	—	—	—	8.35	8.35	—	3.98	3.98	—	0.00	0.00	0.00	0.00	—	0.00
2055	0.17	0.17	—	—	—	—	8.35	8.35	—	3.98	3.98	—	0.00	0.00	0.00	0.00	—	0.00
2056	0.17	0.17	—	—	—	—	8.37	8.37	—	3.99	3.99	—	0.00	0.00	0.00	0.00	—	0.00
2057	0.16	0.16	—	—	—	—	8.12	8.12	—	3.87	3.87	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.83	0.70	5.86	6.72	0.01	0.23	1.54	1.77	0.21	0.73	0.94	—	1,279	1,279	0.05	0.04	0.32	1,292
2029	0.81	0.68	5.57	6.66	0.01	0.22	1.55	1.76	0.20	0.73	0.93	—	1,276	1,276	0.05	0.04	0.29	1,289
2030	0.79	0.66	5.41	6.69	0.01	0.21	1.55	1.76	0.19	0.73	0.93	—	1,269	1,269	0.05	0.04	0.26	1,282
2031	0.77	0.65	5.23	6.56	0.01	0.21	1.55	1.75	0.19	0.73	0.92	—	1,263	1,263	0.05	0.04	0.23	1,276
2032	0.74	0.62	4.86	6.18	0.01	0.18	1.55	1.74	0.17	0.73	0.90	—	1,261	1,261	0.05	0.03	0.21	1,272

2033	0.71	0.60	4.63	5.90	0.01	0.17	1.55	1.72	0.16	0.73	0.89	—	1,252	1,252	0.05	0.03	0.18	1,263
2034	0.70	0.59	4.52	5.82	0.01	0.16	1.55	1.71	0.15	0.73	0.88	—	1,248	1,248	0.05	0.03	0.16	1,258
2035	0.67	0.57	4.26	5.59	0.01	0.15	1.55	1.69	0.13	0.73	0.87	—	1,243	1,243	0.04	0.03	0.14	1,254
2036	0.65	0.55	4.04	5.39	0.01	0.13	1.55	1.68	0.12	0.73	0.86	—	1,243	1,243	0.04	0.03	0.12	1,253
2037	0.64	0.54	4.02	5.39	0.01	0.13	1.55	1.68	0.12	0.73	0.86	—	1,236	1,236	0.04	0.03	0.10	1,247
2038	0.62	0.52	3.73	5.10	0.01	0.12	1.55	1.67	0.11	0.73	0.84	—	1,233	1,233	0.04	0.03	0.09	1,243
2039	0.60	0.51	3.64	5.03	0.01	0.12	1.55	1.66	0.11	0.73	0.84	—	1,231	1,231	0.04	0.03	0.07	1,241
2040	0.60	0.51	3.62	5.01	0.01	0.12	1.55	1.67	0.11	0.73	0.84	—	1,232	1,232	0.04	0.03	0.06	1,242
2041	0.57	0.48	3.39	4.86	0.01	0.10	1.55	1.65	0.09	0.73	0.83	—	1,227	1,227	0.04	0.03	0.05	1,237
2042	0.57	0.48	3.31	4.78	0.01	0.10	1.55	1.64	0.09	0.73	0.82	—	1,225	1,225	0.04	0.03	0.05	1,235
2043	0.56	0.47	3.33	4.76	0.01	0.10	1.55	1.64	0.09	0.73	0.82	—	1,224	1,224	0.04	0.03	0.04	1,234
2044	0.54	0.46	3.14	4.65	0.01	0.09	1.55	1.64	0.08	0.73	0.81	—	1,226	1,226	0.04	0.03	0.03	1,236
2045	0.54	0.46	3.12	4.63	0.01	0.08	1.55	1.63	0.08	0.73	0.81	—	1,222	1,222	0.04	0.03	0.03	1,231
2046	0.52	0.44	2.90	4.55	0.01	0.07	1.55	1.62	0.07	0.73	0.80	—	1,221	1,221	0.04	0.03	0.02	1,231
2047	0.51	0.44	2.84	4.55	0.01	0.07	1.55	1.62	0.07	0.73	0.80	—	1,220	1,220	0.04	0.03	0.02	1,230
2048	0.51	0.43	2.80	4.43	0.01	0.07	1.55	1.62	0.07	0.73	0.80	—	1,223	1,223	0.04	0.03	0.02	1,233
2049	0.50	0.43	2.64	4.40	0.01	0.07	1.55	1.61	0.06	0.73	0.79	—	1,219	1,219	0.04	0.03	0.02	1,229
2050	0.50	0.42	2.54	4.39	0.01	0.06	1.55	1.61	0.06	0.73	0.79	—	1,219	1,219	0.04	0.03	0.01	1,229
2051	0.03	0.03	—	—	—	—	1.52	1.52	—	0.73	0.73	—	0.00	0.00	0.00	0.00	—	0.00
2052	0.03	0.03	—	—	—	—	1.53	1.53	—	0.73	0.73	—	0.00	0.00	0.00	0.00	—	0.00
2053	0.03	0.03	—	—	—	—	1.52	1.52	—	0.73	0.73	—	0.00	0.00	0.00	0.00	—	0.00
2054	0.03	0.03	—	—	—	—	1.52	1.52	—	0.73	0.73	—	0.00	0.00	0.00	0.00	—	0.00
2055	0.03	0.03	—	—	—	—	1.52	1.52	—	0.73	0.73	—	0.00	0.00	0.00	0.00	—	0.00
2056	0.03	0.03	—	—	—	—	1.53	1.53	—	0.73	0.73	—	0.00	0.00	0.00	0.00	—	0.00
2057	0.03	0.03	—	—	—	—	1.48	1.48	—	0.71	0.71	—	0.00	0.00	0.00	0.00	—	0.00

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.37	7.06	2.08	207	0.01	0.05	0.00	0.05	0.05	0.00	0.05	202	2,317	2,519	20.4	0.03	0.30	3,038
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.37	7.06	2.08	207	0.01	0.05	0.00	0.05	0.05	0.00	0.05	202	2,317	2,519	20.4	0.03	0.30	3,038
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.37	7.06	2.08	207	0.01	0.05	0.00	0.05	0.05	0.00	0.05	202	2,317	2,519	20.4	0.03	0.30	3,038
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.35	1.29	0.38	37.8	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	33.4	384	417	3.37	0.01	0.05	503
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	40.0	40.0	100	40.0	—	—	15.0	—	—	10.0	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	7.31	7.03	1.48	207	0.01	0.01	—	0.01	0.01	—	0.01	—	439	439	0.02	< 0.005	—	441
Energy	0.07	0.03	0.60	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,471	1,471	0.12	0.01	—	1,477
Water	—	—	—	—	—	—	—	—	—	—	—	7.14	407	414	0.76	0.02	—	439

Waste	—	—	—	—	—	—	—	—	—	—	—	195	0.00	195	19.5	0.00	—	682
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.30	0.30
Total	7.37	7.06	2.08	207	0.01	0.05	0.00	0.05	0.05	0.00	0.05	202	2,317	2,519	20.4	0.03	0.30	3,038
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	7.31	7.03	1.48	207	0.01	0.01	—	0.01	0.01	—	0.01	—	439	439	0.02	< 0.005	—	441
Energy	0.07	0.03	0.60	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,471	1,471	0.12	0.01	—	1,477
Water	—	—	—	—	—	—	—	—	—	—	—	7.14	407	414	0.76	0.02	—	439
Waste	—	—	—	—	—	—	—	—	—	—	—	195	0.00	195	19.5	0.00	—	682
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.30	0.30
Total	7.37	7.06	2.08	207	0.01	0.05	0.00	0.05	0.05	0.00	0.05	202	2,317	2,519	20.4	0.03	0.30	3,038
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	7.31	7.03	1.48	207	0.01	0.01	—	0.01	0.01	—	0.01	—	439	439	0.02	< 0.005	—	441
Energy	0.07	0.03	0.60	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,471	1,471	0.12	0.01	—	1,477
Water	—	—	—	—	—	—	—	—	—	—	—	7.14	407	414	0.76	0.02	—	439
Waste	—	—	—	—	—	—	—	—	—	—	—	195	0.00	195	19.5	0.00	—	682
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.30	0.30
Total	7.37	7.06	2.08	207	0.01	0.05	0.00	0.05	0.05	0.00	0.05	202	2,317	2,519	20.4	0.03	0.30	3,038
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	1.33	1.28	0.27	37.7	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	72.7	72.7	< 0.005	< 0.005	—	73.0
Energy	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	244	244	0.02	< 0.005	—	244
Water	—	—	—	—	—	—	—	—	—	—	—	1.18	67.3	68.5	0.13	< 0.005	—	72.7
Waste	—	—	—	—	—	—	—	—	—	—	—	32.3	0.00	32.3	3.22	0.00	—	113
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05

Total	1.35	1.29	0.38	37.8	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	33.4	384	417	3.37	0.01	0.05	503

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	7.31	7.03	1.48	207	0.01	0.01	—	0.01	0.01	—	0.01	—	439	439	0.02	< 0.005	—	441
Energy	0.07	0.03	0.60	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,471	1,471	0.12	0.01	—	1,477
Water	—	—	—	—	—	—	—	—	—	—	—	7.14	407	414	0.76	0.02	—	439
Waste	—	—	—	—	—	—	—	—	—	—	—	195	0.00	195	19.5	0.00	—	682
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.30	0.30
Total	7.37	7.06	2.08	207	0.01	0.05	0.00	0.05	0.05	0.00	0.05	202	2,317	2,519	20.4	0.03	0.30	3,038
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	7.31	7.03	1.48	207	0.01	0.01	—	0.01	0.01	—	0.01	—	439	439	0.02	< 0.005	—	441
Energy	0.07	0.03	0.60	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,471	1,471	0.12	0.01	—	1,477
Water	—	—	—	—	—	—	—	—	—	—	—	7.14	407	414	0.76	0.02	—	439
Waste	—	—	—	—	—	—	—	—	—	—	—	195	0.00	195	19.5	0.00	—	682
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.30	0.30
Total	7.37	7.06	2.08	207	0.01	0.05	0.00	0.05	0.05	0.00	0.05	202	2,317	2,519	20.4	0.03	0.30	3,038
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	7.31	7.03	1.48	207	0.01	0.01	—	0.01	0.01	—	0.01	—	439	439	0.02	< 0.005	—	441
Energy	0.07	0.03	0.60	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	1,471	1,471	0.12	0.01	—	1,477

Water	—	—	—	—	—	—	—	—	—	—	—	7.14	407	414	0.76	0.02	—	439
Waste	—	—	—	—	—	—	—	—	—	—	—	195	0.00	195	19.5	0.00	—	682
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.30	0.30
Total	7.37	7.06	2.08	207	0.01	0.05	0.00	0.05	0.05	0.00	0.05	202	2,317	2,519	20.4	0.03	0.30	3,038
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	1.33	1.28	0.27	37.7	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	72.7	72.7	< 0.005	< 0.005	—	73.0
Energy	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	244	244	0.02	< 0.005	—	244
Water	—	—	—	—	—	—	—	—	—	—	—	1.18	67.3	68.5	0.13	< 0.005	—	72.7
Waste	—	—	—	—	—	—	—	—	—	—	—	32.3	0.00	32.3	3.22	0.00	—	113
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05
Total	1.35	1.29	0.38	37.8	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	33.4	384	417	3.37	0.01	0.05	503

3. Construction Emissions Details

3.1. Site Preparation (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.50	2.94	26.5	26.4	0.05	1.12	—	1.12	1.03	—	1.03	—	5,010	5,010	0.20	0.04	—	5,027
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.87	4.87	< 0.005	< 0.005	0.01	5.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.50	2.94	26.5	26.4	0.05	1.12	—	1.12	1.03	—	1.03	—	5,010	5,010	0.20	0.04	—	5,027
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.90	4.90	< 0.005	< 0.005	< 0.005	5.15
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.49	2.10	18.9	18.8	0.03	0.80	—	0.80	0.73	—	0.73	—	3,569	3,569	0.14	0.03	—	3,581
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.20	7.20	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.48	3.48	< 0.005	< 0.005	< 0.005	3.66
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.46	0.38	3.44	3.44	0.01	0.15	—	0.15	0.13	—	0.13	—	591	591	0.02	< 0.005	—	593
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.31	1.31	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.58	0.58	< 0.005	< 0.005	< 0.005	0.61

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	1.16	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	264	264	< 0.005	0.01	0.79	268
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.01	0.78	0.24	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	652	652	0.02	0.10	1.37	684
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.08	0.93	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	245	245	< 0.005	0.01	0.02	248
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.01	0.82	0.25	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	652	652	0.02	0.10	0.04	684
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.06	0.69	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	178	178	< 0.005	0.01	0.24	180
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.58	0.17	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	464	464	0.02	0.07	0.42	487
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.4	29.4	< 0.005	< 0.005	0.04	29.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.11	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	76.9	76.9	< 0.005	0.01	0.07	80.7

3.2. Site Preparation (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	3.50	2.94	26.5	26.4	0.05	1.12	—	1.12	1.03	—	1.03	—	5,010	5,010	0.20	0.04	—	5,027
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.87	4.87	< 0.005	< 0.005	0.01	5.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.50	2.94	26.5	26.4	0.05	1.12	—	1.12	1.03	—	1.03	—	5,010	5,010	0.20	0.04	—	5,027
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.90	4.90	< 0.005	< 0.005	< 0.005	5.15
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.49	2.10	18.9	18.8	0.03	0.80	—	0.80	0.73	—	0.73	—	3,569	3,569	0.14	0.03	—	3,581
Dust From Material Movement	—	—	—	—	—	—	5.46	5.46	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	3.48	3.48	< 0.005	< 0.005	< 0.005	3.66
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.46	0.38	3.44	3.44	0.01	0.15	—	0.15	0.13	—	0.13	—	591	591	0.02	< 0.005	—	593

Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.58	0.58	< 0.005	< 0.005	< 0.005	0.61
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	1.16	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	264	264	< 0.005	0.01	0.79	268
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.01	0.78	0.24	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	652	652	0.02	0.10	1.37	684
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.08	0.93	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	245	245	< 0.005	0.01	0.02	248
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.01	0.82	0.25	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	652	652	0.02	0.10	0.04	684
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.06	0.69	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	178	178	< 0.005	0.01	0.24	180
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.58	0.17	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	464	464	0.02	0.07	0.42	487
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.4	29.4	< 0.005	< 0.005	0.04	29.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.11	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	76.9	76.9	< 0.005	0.01	0.07	80.7

3.3. Site Preparation (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.42	2.88	25.0	26.2	0.05	1.06	—	1.06	0.98	—	0.98	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.76	4.76	< 0.005	< 0.005	0.01	5.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.42	2.88	25.0	26.2	0.05	1.06	—	1.06	0.98	—	0.98	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.80	4.80	< 0.005	< 0.005	< 0.005	5.04
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.44	2.05	17.9	18.7	0.03	0.76	—	0.76	0.70	—	0.70	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.22	7.22	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.41	3.41	< 0.005	< 0.005	< 0.005	3.58
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	0.37	3.26	3.41	0.01	0.14	—	0.14	0.13	—	0.13	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.56	0.56	< 0.005	< 0.005	< 0.005	0.59
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	1.09	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	260	260	< 0.005	0.01	0.71	263
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.75	0.24	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	635	635	0.02	0.10	1.26	666
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.87	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	241	241	< 0.005	0.01	0.02	244
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.79	0.24	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	635	635	0.02	0.10	0.03	665
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.65	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	175	175	< 0.005	0.01	0.22	177
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.56	0.17	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	453	453	0.02	0.07	0.39	475
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.0	29.0	< 0.005	< 0.005	0.04	29.4

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.10	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	75.1	75.1	< 0.005	0.01	0.06	78.7

3.4. Site Preparation (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.42	2.88	25.0	26.2	0.05	1.06	—	1.06	0.98	—	0.98	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.76	4.76	< 0.005	< 0.005	0.01	5.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.42	2.88	25.0	26.2	0.05	1.06	—	1.06	0.98	—	0.98	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.80	4.80	< 0.005	< 0.005	< 0.005	5.04
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	2.44	2.05	17.9	18.7	0.03	0.76	—	0.76	0.70	—	0.70	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	3.41	3.41	< 0.005	< 0.005	< 0.005	3.58
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	0.37	3.26	3.41	0.01	0.14	—	0.14	0.13	—	0.13	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.56	0.56	< 0.005	< 0.005	< 0.005	0.59
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	1.09	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	260	260	< 0.005	0.01	0.71	263
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.75	0.24	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	635	635	0.02	0.10	1.26	666
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.87	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	241	241	< 0.005	0.01	0.02	244
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.79	0.24	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	635	635	0.02	0.10	0.03	665
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.65	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	175	175	< 0.005	0.01	0.22	177

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.56	0.17	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	453	453	0.02	0.07	0.39	475
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.0	29.0	< 0.005	< 0.005	0.04	29.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.10	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	75.1	75.1	< 0.005	0.01	0.06	78.7

3.5. Site Preparation (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.36	2.83	24.3	26.5	0.05	1.04	—	1.04	0.96	—	0.96	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.65	4.65	< 0.005	< 0.005	0.01	4.89
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.36	2.83	24.3	26.5	0.05	1.04	—	1.04	0.96	—	0.96	—	5,006	5,006	0.20	0.04	—	5,023

Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.69	4.69	< 0.005	< 0.005	< 0.005	4.93
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.40	2.02	17.4	18.9	0.03	0.75	—	0.75	0.69	—	0.69	—	3,575	3,575	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.22	7.22	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.33	3.33	< 0.005	< 0.005	< 0.005	3.50
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.44	0.37	3.17	3.46	0.01	0.14	—	0.14	0.13	—	0.13	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.58
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	1.02	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	255	255	< 0.005	0.01	0.63	259
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.73	0.24	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	618	618	0.02	0.10	1.15	649

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.82	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	237	237	< 0.005	0.01	0.02	240
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.77	0.24	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	618	618	0.02	0.10	0.03	649
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.61	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	172	172	< 0.005	0.01	0.19	174
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.54	0.17	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	442	442	0.01	0.07	0.35	463
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.5	28.5	< 0.005	< 0.005	0.03	28.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.10	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	73.1	73.1	< 0.005	0.01	0.06	76.7

3.6. Site Preparation (2030) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.36	2.83	24.3	26.5	0.05	1.04	—	1.04	0.96	—	0.96	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.65	4.65	< 0.005	< 0.005	0.01	4.89
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.36	2.83	24.3	26.5	0.05	1.04	—	1.04	0.96	—	0.96	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.69	4.69	< 0.005	< 0.005	< 0.005	4.93
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.40	2.02	17.4	18.9	0.03	0.75	—	0.75	0.69	—	0.69	—	3,575	3,575	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	3.33	3.33	< 0.005	< 0.005	< 0.005	3.50
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.44	0.37	3.17	3.46	0.01	0.14	—	0.14	0.13	—	0.13	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.58

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	1.02	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	255	255	< 0.005	0.01	0.63	259
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.73	0.24	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	618	618	0.02	0.10	1.15	649
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.82	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	237	237	< 0.005	0.01	0.02	240
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.77	0.24	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	618	618	0.02	0.10	0.03	649
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.61	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	172	172	< 0.005	0.01	0.19	174
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.54	0.17	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	442	442	0.01	0.07	0.35	463
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.5	28.5	< 0.005	< 0.005	0.03	28.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.10	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	73.1	73.1	< 0.005	0.01	0.06	76.7

3.7. Site Preparation (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	3.31	2.78	23.4	26.0	0.05	1.02	—	1.02	0.94	—	0.94	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.55	4.55	< 0.005	< 0.005	0.01	4.79
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.31	2.78	23.4	26.0	0.05	1.02	—	1.02	0.94	—	0.94	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.59	4.59	< 0.005	< 0.005	< 0.005	4.82
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.36	1.99	16.7	18.6	0.03	0.73	—	0.73	0.67	—	0.67	—	3,575	3,575	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.22	7.22	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.26	3.26	< 0.005	< 0.005	< 0.005	3.43
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.36	3.05	3.39	0.01	0.13	—	0.13	0.12	—	0.12	—	592	592	0.02	< 0.005	—	594

Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.54	0.54	< 0.005	< 0.005	< 0.005	0.57
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	0.96	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	< 0.005	0.56	252
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.71	0.23	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	602	602	0.02	0.10	1.04	632
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.77	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	233	233	< 0.005	0.01	0.01	236
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.75	0.23	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	602	602	0.02	0.10	0.03	631
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.57	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	169	169	< 0.005	0.01	0.17	172
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.53	0.16	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	430	430	0.01	0.07	0.32	451
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.0	28.0	< 0.005	< 0.005	0.03	28.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.10	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	71.2	71.2	< 0.005	0.01	0.05	74.6

3.8. Site Preparation (2031) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.31	2.78	23.4	26.0	0.05	1.02	—	1.02	0.94	—	0.94	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.55	4.55	< 0.005	< 0.005	0.01	4.79
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.31	2.78	23.4	26.0	0.05	1.02	—	1.02	0.94	—	0.94	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.59	4.59	< 0.005	< 0.005	< 0.005	4.82
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.36	1.99	16.7	18.6	0.03	0.73	—	0.73	0.67	—	0.67	—	3,575	3,575	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	3.26	3.26	< 0.005	< 0.005	< 0.005	3.43
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.36	3.05	3.39	0.01	0.13	—	0.13	0.12	—	0.12	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.54	0.54	< 0.005	< 0.005	< 0.005	0.57
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	0.96	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	< 0.005	0.56	252
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.71	0.23	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	602	602	0.02	0.10	1.04	632
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.77	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	233	233	< 0.005	0.01	0.01	236
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.75	0.23	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	602	602	0.02	0.10	0.03	631
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.57	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	169	169	< 0.005	0.01	0.17	172
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.53	0.16	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	430	430	0.01	0.07	0.32	451
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.0	28.0	< 0.005	< 0.005	0.03	28.4

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.10	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	71.2	71.2	< 0.005	0.01	0.05	74.6

3.9. Site Preparation (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.11	2.62	21.4	23.8	0.05	0.91	—	0.91	0.83	—	0.83	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.46	4.46	< 0.005	< 0.005	< 0.005	4.69
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.11	2.62	21.4	23.8	0.05	0.91	—	0.91	0.83	—	0.83	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.50	4.50	< 0.005	< 0.005	< 0.005	4.72
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	2.23	1.87	15.3	17.1	0.03	0.65	—	0.65	0.60	—	0.60	—	3,585	3,585	0.15	0.03	—	3,598
Dust From Material Movement	—	—	—	—	—	—	14.1	14.1	—	7.24	7.24	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.20	3.20	< 0.005	< 0.005	< 0.005	3.37
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.34	2.80	3.12	0.01	0.12	—	0.12	0.11	—	0.11	—	594	594	0.02	< 0.005	—	596
Dust From Material Movement	—	—	—	—	—	—	2.57	2.57	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.53	0.53	< 0.005	< 0.005	< 0.005	0.56
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.90	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	248	248	< 0.005	< 0.005	0.49	249
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.69	0.22	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	586	586	0.02	0.10	0.93	616
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.05	0.73	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	230	230	< 0.005	0.01	0.01	233
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.73	0.23	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	587	587	0.02	0.10	0.02	615
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.54	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	167	167	< 0.005	< 0.005	0.15	168

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.52	0.16	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	420	420	0.01	0.07	0.29	441
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.7	27.7	< 0.005	< 0.005	0.03	27.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	69.5	69.5	< 0.005	0.01	0.05	73.0

3.10. Site Preparation (2032) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.11	2.62	21.4	23.8	0.05	0.91	—	0.91	0.83	—	0.83	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.46	4.46	< 0.005	< 0.005	< 0.005	4.69
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.11	2.62	21.4	23.8	0.05	0.91	—	0.91	0.83	—	0.83	—	5,006	5,006	0.20	0.04	—	5,023

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.50	4.50	< 0.005	< 0.005	< 0.005	4.72
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.23	1.87	15.3	17.1	0.03	0.65	—	0.65	0.60	—	0.60	—	3,585	3,585	0.15	0.03	—	3,598
Dust From Material Movement	—	—	—	—	—	—	5.49	5.49	—	2.82	2.82	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	3.20	3.20	< 0.005	< 0.005	< 0.005	3.37
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.34	2.80	3.12	0.01	0.12	—	0.12	0.11	—	0.11	—	594	594	0.02	< 0.005	—	596
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.52	0.52	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.53	0.53	< 0.005	< 0.005	< 0.005	0.56
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.90	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	248	248	< 0.005	< 0.005	0.49	249
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.69	0.22	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	586	586	0.02	0.10	0.93	616

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.05	0.73	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	230	230	< 0.005	0.01	0.01	233
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.73	0.23	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	587	587	0.02	0.10	0.02	615
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.54	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	167	167	< 0.005	< 0.005	0.15	168
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.52	0.16	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	420	420	0.01	0.07	0.29	441
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.7	27.7	< 0.005	< 0.005	0.03	27.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	69.5	69.5	< 0.005	0.01	0.05	73.0

3.11. Site Preparation (2033) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.02	2.54	20.3	22.5	0.05	0.85	—	0.85	0.78	—	0.78	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.37	4.37	< 0.005	< 0.005	< 0.005	4.60
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.02	2.54	20.3	22.5	0.05	0.85	—	0.85	0.78	—	0.78	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.41	4.41	< 0.005	< 0.005	< 0.005	4.63
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.16	1.81	14.5	16.0	0.03	0.60	—	0.60	0.56	—	0.56	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.22	7.22	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.14	3.14	< 0.005	< 0.005	< 0.005	3.29
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.39	0.33	2.65	2.93	0.01	0.11	—	0.11	0.10	—	0.10	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.52	0.52	< 0.005	< 0.005	< 0.005	0.55

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.86	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	245	245	< 0.005	< 0.005	0.44	245
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.67	0.22	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	572	572	0.02	0.09	0.82	600
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.69	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.01	227
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.71	0.22	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	573	573	0.02	0.09	0.02	600
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.51	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	165	165	< 0.005	< 0.005	0.13	165
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.50	0.16	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	409	409	0.01	0.06	0.25	429
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.3	27.3	< 0.005	< 0.005	0.02	27.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.7	67.7	< 0.005	0.01	0.04	71.0

3.12. Site Preparation (2033) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	3.02	2.54	20.3	22.5	0.05	0.85	—	0.85	0.78	—	0.78	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.37	4.37	< 0.005	< 0.005	< 0.005	4.60
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.02	2.54	20.3	22.5	0.05	0.85	—	0.85	0.78	—	0.78	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.41	4.41	< 0.005	< 0.005	< 0.005	4.63
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.16	1.81	14.5	16.0	0.03	0.60	—	0.60	0.56	—	0.56	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	3.14	3.14	< 0.005	< 0.005	< 0.005	3.29
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.39	0.33	2.65	2.93	0.01	0.11	—	0.11	0.10	—	0.10	—	592	592	0.02	< 0.005	—	594

Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.52	0.52	< 0.005	< 0.005	< 0.005	0.55
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.86	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	245	245	< 0.005	< 0.005	0.44	245
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.67	0.22	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	572	572	0.02	0.09	0.82	600
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.69	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.01	227
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.71	0.22	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	573	573	0.02	0.09	0.02	600
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.51	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	165	165	< 0.005	< 0.005	0.13	165
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.50	0.16	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	409	409	0.01	0.06	0.25	429
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.3	27.3	< 0.005	< 0.005	0.02	27.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.7	67.7	< 0.005	0.01	0.04	71.0

3.13. Site Preparation (2034) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.96	2.49	19.7	22.2	0.05	0.80	—	0.80	0.74	—	0.74	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.30	4.30	< 0.005	< 0.005	< 0.005	4.52
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.96	2.49	19.7	22.2	0.05	0.80	—	0.80	0.74	—	0.74	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.34	4.34	< 0.005	< 0.005	< 0.005	4.56
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.11	1.78	14.1	15.8	0.03	0.57	—	0.57	0.53	—	0.53	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.22	7.22	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.08	3.08	< 0.005	< 0.005	< 0.005	3.24
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.39	0.32	2.57	2.89	0.01	0.10	—	0.10	0.10	—	0.10	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.51	0.51	< 0.005	< 0.005	< 0.005	0.54
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.81	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	242	242	< 0.005	< 0.005	0.38	242
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.66	0.21	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	560	560	0.02	0.09	0.72	588
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.01	225
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.69	0.21	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	560	560	0.02	0.09	0.02	587
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.48	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	163	163	< 0.005	< 0.005	0.12	163
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.49	0.15	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	400	400	0.01	0.06	0.22	420
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.9	26.9	< 0.005	< 0.005	0.02	27.0

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	66.2	66.2	< 0.005	0.01	0.04	69.5

3.14. Site Preparation (2034) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.96	2.49	19.7	22.2	0.05	0.80	—	0.80	0.74	—	0.74	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.30	4.30	< 0.005	< 0.005	< 0.005	4.52
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.96	2.49	19.7	22.2	0.05	0.80	—	0.80	0.74	—	0.74	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.34	4.34	< 0.005	< 0.005	< 0.005	4.56
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	2.11	1.78	14.1	15.8	0.03	0.57	—	0.57	0.53	—	0.53	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	3.08	3.08	< 0.005	< 0.005	< 0.005	3.24
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.39	0.32	2.57	2.89	0.01	0.10	—	0.10	0.10	—	0.10	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.51	0.51	< 0.005	< 0.005	< 0.005	0.54
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.81	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	242	242	< 0.005	< 0.005	0.38	242
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.66	0.21	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	560	560	0.02	0.09	0.72	588
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.01	225
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.69	0.21	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	560	560	0.02	0.09	0.02	587
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.48	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	163	163	< 0.005	< 0.005	0.12	163

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.49	0.15	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	400	400	0.01	0.06	0.22	420
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.9	26.9	< 0.005	< 0.005	0.02	27.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	66.2	66.2	< 0.005	0.01	0.04	69.5

3.15. Site Preparation (2035) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.83	2.38	18.3	21.0	0.05	0.72	—	0.72	0.67	—	0.67	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.23	4.23	< 0.005	< 0.005	< 0.005	4.45
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.83	2.38	18.3	21.0	0.05	0.72	—	0.72	0.67	—	0.67	—	5,006	5,006	0.20	0.04	—	5,023

Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.27	4.27	< 0.005	< 0.005	< 0.005	4.48
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.02	1.70	13.1	15.0	0.03	0.52	—	0.52	0.48	—	0.48	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.22	7.22	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.03	3.03	< 0.005	< 0.005	< 0.005	3.19
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	0.31	2.39	2.73	0.01	0.09	—	0.09	0.09	—	0.09	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.50	0.50	< 0.005	< 0.005	< 0.005	0.53
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.77	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	239	239	< 0.005	< 0.005	0.33	240
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.64	0.21	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	548	548	0.01	0.09	0.62	575

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.01	222
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.68	0.21	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	549	549	0.01	0.09	0.02	575
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.46	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	161	161	< 0.005	< 0.005	0.10	161
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.48	0.15	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	392	392	0.01	0.06	0.19	411
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.6	26.6	< 0.005	< 0.005	0.02	26.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	64.9	64.9	< 0.005	0.01	0.03	68.0

3.16. Site Preparation (2035) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.83	2.38	18.3	21.0	0.05	0.72	—	0.72	0.67	—	0.67	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.23	4.23	< 0.005	< 0.005	< 0.005	4.45
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.83	2.38	18.3	21.0	0.05	0.72	—	0.72	0.67	—	0.67	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.27	4.27	< 0.005	< 0.005	< 0.005	4.48
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.02	1.70	13.1	15.0	0.03	0.52	—	0.52	0.48	—	0.48	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	3.03	3.03	< 0.005	< 0.005	< 0.005	3.19
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	0.31	2.39	2.73	0.01	0.09	—	0.09	0.09	—	0.09	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.50	0.50	< 0.005	< 0.005	< 0.005	0.53

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.77	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	239	239	< 0.005	< 0.005	0.33	240
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.64	0.21	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	548	548	0.01	0.09	0.62	575
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.01	222
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.68	0.21	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	549	549	0.01	0.09	0.02	575
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.46	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	161	161	< 0.005	< 0.005	0.10	161
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.48	0.15	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	392	392	0.01	0.06	0.19	411
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.6	26.6	< 0.005	< 0.005	0.02	26.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	64.9	64.9	< 0.005	0.01	0.03	68.0

3.17. Site Preparation (2036) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	2.69	2.26	17.2	19.8	0.05	0.66	—	0.66	0.61	—	0.61	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.17	4.17	< 0.005	< 0.005	< 0.005	4.38
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.69	2.26	17.2	19.8	0.05	0.66	—	0.66	0.61	—	0.61	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.21	4.21	< 0.005	< 0.005	< 0.005	4.43
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.93	1.62	12.3	14.2	0.03	0.47	—	0.47	0.43	—	0.43	—	3,585	3,585	0.15	0.03	—	3,598
Dust From Material Movement	—	—	—	—	—	—	14.1	14.1	—	7.24	7.24	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.00	3.00	< 0.005	< 0.005	< 0.005	3.16
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.30	2.24	2.59	0.01	0.09	—	0.09	0.08	—	0.08	—	594	594	0.02	< 0.005	—	596

Dust From Material Movement	—	—	—	—	—	—	2.57	2.57	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.50	0.50	< 0.005	< 0.005	< 0.005	0.52
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.73	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	236	236	< 0.005	< 0.005	0.28	237
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.63	0.20	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	538	538	0.01	0.09	0.53	565
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	219	219	< 0.005	< 0.005	0.01	220
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.67	0.21	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	539	539	0.01	0.09	0.01	565
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.44	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	160	160	< 0.005	< 0.005	0.09	160
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.47	0.15	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	386	386	0.01	0.06	0.17	405
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.4	26.4	< 0.005	< 0.005	0.01	26.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	63.9	63.9	< 0.005	0.01	0.03	67.0

3.18. Site Preparation (2036) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.69	2.26	17.2	19.8	0.05	0.66	—	0.66	0.61	—	0.61	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.17	4.17	< 0.005	< 0.005	< 0.005	4.38
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.69	2.26	17.2	19.8	0.05	0.66	—	0.66	0.61	—	0.61	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.21	4.21	< 0.005	< 0.005	< 0.005	4.43
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.93	1.62	12.3	14.2	0.03	0.47	—	0.47	0.43	—	0.43	—	3,585	3,585	0.15	0.03	—	3,598
Dust From Material Movement	—	—	—	—	—	—	5.49	5.49	—	2.82	2.82	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	3.00	3.00	< 0.005	< 0.005	< 0.005	3.16
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.30	2.24	2.59	0.01	0.09	—	0.09	0.08	—	0.08	—	594	594	0.02	< 0.005	—	596
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.52	0.52	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.50	0.50	< 0.005	< 0.005	< 0.005	0.52
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.73	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	236	236	< 0.005	< 0.005	0.28	237
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.63	0.20	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	538	538	0.01	0.09	0.53	565
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	219	219	< 0.005	< 0.005	0.01	220
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.67	0.21	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	539	539	0.01	0.09	0.01	565
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.44	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	160	160	< 0.005	< 0.005	0.09	160
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.47	0.15	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	386	386	0.01	0.06	0.17	405
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.4	26.4	< 0.005	< 0.005	0.01	26.5

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	63.9	63.9	< 0.005	0.01	0.03	67.0

3.19. Site Preparation (2037) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.70	2.27	17.2	20.0	0.05	0.67	—	0.67	0.62	—	0.62	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.13	4.13	< 0.005	< 0.005	< 0.005	4.33
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.70	2.27	17.2	20.0	0.05	0.67	—	0.67	0.62	—	0.62	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.17	4.17	< 0.005	< 0.005	< 0.005	4.38
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	1.93	1.62	12.3	14.3	0.03	0.48	—	0.48	0.44	—	0.44	—	3,575	3,575	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.22	7.22	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.96	2.96	< 0.005	< 0.005	< 0.005	3.11
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.30	2.25	2.61	0.01	0.09	—	0.09	0.08	—	0.08	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.49	0.49	< 0.005	< 0.005	< 0.005	0.52
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.71	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	234	234	< 0.005	< 0.005	0.24	235
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.62	0.20	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	530	530	0.01	0.09	0.46	557
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.56	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	217	217	< 0.005	< 0.005	0.01	218
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.66	0.20	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	530	530	0.01	0.09	0.01	557
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.42	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	158	158	< 0.005	< 0.005	0.08	158

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.46	0.14	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	379	379	0.01	0.06	0.14	397
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.1	26.1	< 0.005	< 0.005	0.01	26.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	62.7	62.7	< 0.005	0.01	0.02	65.8

3.20. Site Preparation (2037) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.70	2.27	17.2	20.0	0.05	0.67	—	0.67	0.62	—	0.62	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.13	4.13	< 0.005	< 0.005	< 0.005	4.33
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.70	2.27	17.2	20.0	0.05	0.67	—	0.67	0.62	—	0.62	—	5,006	5,006	0.20	0.04	—	5,023

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.17	4.17	< 0.005	< 0.005	< 0.005	4.38
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.93	1.62	12.3	14.3	0.03	0.48	—	0.48	0.44	—	0.44	—	3,575	3,575	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.96	2.96	< 0.005	< 0.005	< 0.005	3.11
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.30	2.25	2.61	0.01	0.09	—	0.09	0.08	—	0.08	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.49	0.49	< 0.005	< 0.005	< 0.005	0.52
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.71	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	234	234	< 0.005	< 0.005	0.24	235
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.62	0.20	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	530	530	0.01	0.09	0.46	557

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.56	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	217	217	< 0.005	< 0.005	0.01	218
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.66	0.20	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	530	530	0.01	0.09	0.01	557
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.42	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	158	158	< 0.005	< 0.005	0.08	158
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.46	0.14	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	379	379	0.01	0.06	0.14	397
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.1	26.1	< 0.005	< 0.005	0.01	26.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	62.7	62.7	< 0.005	0.01	0.02	65.8

3.21. Site Preparation (2038) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.56	2.15	15.7	18.4	0.05	0.60	—	0.60	0.56	—	0.56	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.08	4.08	< 0.005	< 0.005	< 0.005	4.29
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.56	2.15	15.7	18.4	0.05	0.60	—	0.60	0.56	—	0.56	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.13	4.13	< 0.005	< 0.005	< 0.005	4.33
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.83	1.53	11.2	13.1	0.03	0.43	—	0.43	0.40	—	0.40	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.22	7.22	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.93	2.93	< 0.005	< 0.005	< 0.005	3.07
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	2.04	2.40	0.01	0.08	—	0.08	0.07	—	0.07	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.49	0.49	< 0.005	< 0.005	< 0.005	0.51

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.68	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	232	232	< 0.005	< 0.005	0.21	233
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	523	523	0.01	0.08	0.39	548
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.54	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	216	216	< 0.005	< 0.005	0.01	216
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.65	0.20	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	523	523	0.01	0.08	0.01	548
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.40	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	157	157	< 0.005	< 0.005	0.06	157
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.46	0.14	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	373	373	0.01	0.06	0.12	391
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.9	25.9	< 0.005	< 0.005	0.01	26.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	61.8	61.8	< 0.005	0.01	0.02	64.8

3.22. Site Preparation (2038) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	2.56	2.15	15.7	18.4	0.05	0.60	—	0.60	0.56	—	0.56	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.08	4.08	< 0.005	< 0.005	< 0.005	4.29
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.56	2.15	15.7	18.4	0.05	0.60	—	0.60	0.56	—	0.56	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.13	4.13	< 0.005	< 0.005	< 0.005	4.33
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.83	1.53	11.2	13.1	0.03	0.43	—	0.43	0.40	—	0.40	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.93	2.93	< 0.005	< 0.005	< 0.005	3.07
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	2.04	2.40	0.01	0.08	—	0.08	0.07	—	0.07	—	592	592	0.02	< 0.005	—	594

Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.49	0.49	< 0.005	< 0.005	< 0.005	0.51
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.68	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	232	232	< 0.005	< 0.005	0.21	233
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	523	523	0.01	0.08	0.39	548
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.54	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	216	216	< 0.005	< 0.005	0.01	216
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.65	0.20	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	523	523	0.01	0.08	0.01	548
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.40	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	157	157	< 0.005	< 0.005	0.06	157
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.46	0.14	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	373	373	0.01	0.06	0.12	391
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.9	25.9	< 0.005	< 0.005	0.01	26.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	61.8	61.8	< 0.005	0.01	0.02	64.8

3.23. Site Preparation (2039) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.51	2.11	15.2	18.1	0.05	0.58	—	0.58	0.53	—	0.53	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.05	4.05	< 0.005	< 0.005	< 0.005	4.25
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.51	2.11	15.2	18.1	0.05	0.58	—	0.58	0.53	—	0.53	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.09	4.09	< 0.005	< 0.005	< 0.005	4.30
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.79	1.50	10.9	12.9	0.03	0.41	—	0.41	0.38	—	0.38	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.22	7.22	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.90	2.90	< 0.005	< 0.005	< 0.005	3.05
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.27	1.98	2.36	0.01	0.08	—	0.08	0.07	—	0.07	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.66	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	231	231	< 0.005	< 0.005	0.18	231
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.60	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	516	516	0.01	0.08	0.34	541
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.52	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	214	214	< 0.005	< 0.005	< 0.005	214
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.64	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	517	517	0.01	0.08	0.01	542
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.39	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	156
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.45	0.14	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	369	369	0.01	0.06	0.10	387
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	61.1	61.1	< 0.005	0.01	0.02	64.0

3.24. Site Preparation (2039) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.51	2.11	15.2	18.1	0.05	0.58	—	0.58	0.53	—	0.53	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.05	4.05	< 0.005	< 0.005	< 0.005	4.25
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.51	2.11	15.2	18.1	0.05	0.58	—	0.58	0.53	—	0.53	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.09	4.09	< 0.005	< 0.005	< 0.005	4.30
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.79	1.50	10.9	12.9	0.03	0.41	—	0.41	0.38	—	0.38	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.90	2.90	< 0.005	< 0.005	< 0.005	3.05
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.27	1.98	2.36	0.01	0.08	—	0.08	0.07	—	0.07	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.66	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	231	231	< 0.005	< 0.005	0.18	231
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.60	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	516	516	0.01	0.08	0.34	541
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.52	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	214	214	< 0.005	< 0.005	< 0.005	214
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.64	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	517	517	0.01	0.08	0.01	542
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.39	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	156

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.45	0.14	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	369	369	0.01	0.06	0.10	387
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	61.1	61.1	< 0.005	0.01	0.02	64.0

3.25. Site Preparation (2040) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.48	2.09	15.1	17.9	0.05	0.57	—	0.57	0.52	—	0.52	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.02	4.02	< 0.005	< 0.005	< 0.005	4.22
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.48	2.09	15.1	17.9	0.05	0.57	—	0.57	0.52	—	0.52	—	5,006	5,006	0.20	0.04	—	5,023

Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.06	4.06	< 0.005	< 0.005	< 0.005	4.27
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.78	1.49	10.8	12.8	0.03	0.41	—	0.41	0.38	—	0.38	—	3,585	3,585	0.15	0.03	—	3,597
Dust From Material Movement	—	—	—	—	—	—	14.1	14.1	—	7.24	7.24	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.89	2.89	< 0.005	< 0.005	< 0.005	3.03
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	1.98	2.34	0.01	0.07	—	0.07	0.07	—	0.07	—	594	594	0.02	< 0.005	—	596
Dust From Material Movement	—	—	—	—	—	—	2.57	2.57	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	229	229	< 0.005	< 0.005	0.15	230
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.60	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	511	511	0.01	0.08	0.29	536

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	213	213	< 0.005	< 0.005	< 0.005	213
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.63	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	511	511	0.01	0.08	0.01	536
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.38	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	155
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.45	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	366	366	0.01	0.06	0.09	384
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.6	25.6	< 0.005	< 0.005	0.01	25.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	60.6	60.6	< 0.005	0.01	0.01	63.6

3.26. Site Preparation (2040) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.48	2.09	15.1	17.9	0.05	0.57	—	0.57	0.52	—	0.52	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.02	4.02	< 0.005	< 0.005	< 0.005	4.22
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.48	2.09	15.1	17.9	0.05	0.57	—	0.57	0.52	—	0.52	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.06	4.06	< 0.005	< 0.005	< 0.005	4.27
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.78	1.49	10.8	12.8	0.03	0.41	—	0.41	0.38	—	0.38	—	3,585	3,585	0.15	0.03	—	3,597
Dust From Material Movement	—	—	—	—	—	—	5.49	5.49	—	2.82	2.82	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.89	2.89	< 0.005	< 0.005	< 0.005	3.03
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	1.98	2.34	0.01	0.07	—	0.07	0.07	—	0.07	—	594	594	0.02	< 0.005	—	596
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.52	0.52	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.50

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	229	229	< 0.005	< 0.005	0.15	230
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.60	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	511	511	0.01	0.08	0.29	536
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	213	213	< 0.005	< 0.005	< 0.005	213
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.63	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	511	511	0.01	0.08	0.01	536
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.38	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	155
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.45	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	366	366	0.01	0.06	0.09	384
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.6	25.6	< 0.005	< 0.005	0.01	25.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	60.6	60.6	< 0.005	0.01	0.01	63.6

3.27. Site Preparation (2041) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	2.34	1.97	13.9	17.2	0.05	0.50	—	0.50	0.46	—	0.46	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.00	4.00	< 0.005	< 0.005	< 0.005	4.20
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.34	1.97	13.9	17.2	0.05	0.50	—	0.50	0.46	—	0.46	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.04	4.04	< 0.005	< 0.005	< 0.005	4.24
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.67	1.40	9.93	12.3	0.03	0.35	—	0.35	0.33	—	0.33	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.22	7.22	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.87	2.87	< 0.005	< 0.005	< 0.005	3.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.26	1.81	2.25	0.01	0.06	—	0.06	0.06	—	0.06	—	592	592	0.02	< 0.005	—	594

Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.62	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	228	228	< 0.005	< 0.005	0.13	228
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.61	0.20	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	506	506	0.01	0.08	0.25	531
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.50	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	211	211	< 0.005	< 0.005	< 0.005	212
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.63	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	507	507	0.01	0.08	0.01	532
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.37	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	154	154	< 0.005	< 0.005	0.04	154
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.44	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	362	362	0.01	0.06	0.08	380
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.4	25.4	< 0.005	< 0.005	0.01	25.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	59.9	59.9	< 0.005	0.01	0.01	62.8

3.28. Site Preparation (2041) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.34	1.97	13.9	17.2	0.05	0.50	—	0.50	0.46	—	0.46	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.00	4.00	< 0.005	< 0.005	< 0.005	4.20
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.34	1.97	13.9	17.2	0.05	0.50	—	0.50	0.46	—	0.46	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.04	4.04	< 0.005	< 0.005	< 0.005	4.24
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.67	1.40	9.93	12.3	0.03	0.35	—	0.35	0.33	—	0.33	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.87	2.87	< 0.005	< 0.005	< 0.005	3.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.26	1.81	2.25	0.01	0.06	—	0.06	0.06	—	0.06	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.62	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	228	228	< 0.005	< 0.005	0.13	228
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.61	0.20	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	506	506	0.01	0.08	0.25	531
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.50	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	211	211	< 0.005	< 0.005	< 0.005	212
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.63	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	507	507	0.01	0.08	0.01	532
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.37	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	154	154	< 0.005	< 0.005	0.04	154
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.44	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	362	362	0.01	0.06	0.08	380
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.4	25.4	< 0.005	< 0.005	0.01	25.5

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	59.9	59.9	< 0.005	0.01	0.01	62.8

3.29. Site Preparation (2042) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.31	1.94	13.5	16.8	0.05	0.48	—	0.48	0.44	—	0.44	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.98	3.98	< 0.005	< 0.005	< 0.005	4.17
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.31	1.94	13.5	16.8	0.05	0.48	—	0.48	0.44	—	0.44	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.02	4.02	< 0.005	< 0.005	< 0.005	4.22
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	1.65	1.39	9.66	12.0	0.03	0.34	—	0.34	0.31	—	0.31	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.22	7.22	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.85	2.85	< 0.005	< 0.005	< 0.005	2.99
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.25	1.76	2.19	0.01	0.06	—	0.06	0.06	—	0.06	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.11	227
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.59	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	503	503	0.01	0.08	0.21	527
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.49	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	210	210	< 0.005	< 0.005	< 0.005	211
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.62	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	503	503	0.01	0.08	0.01	528
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.36	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	153	153	< 0.005	< 0.005	0.03	153

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.44	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	359	359	0.01	0.06	0.07	377
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.3	25.3	< 0.005	< 0.005	0.01	25.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	59.5	59.5	< 0.005	0.01	0.01	62.4

3.30. Site Preparation (2042) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.31	1.94	13.5	16.8	0.05	0.48	—	0.48	0.44	—	0.44	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.98	3.98	< 0.005	< 0.005	< 0.005	4.17
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.31	1.94	13.5	16.8	0.05	0.48	—	0.48	0.44	—	0.44	—	5,006	5,006	0.20	0.04	—	5,023

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.02	4.02	< 0.005	< 0.005	< 0.005	4.22
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.65	1.39	9.66	12.0	0.03	0.34	—	0.34	0.31	—	0.31	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.85	2.85	< 0.005	< 0.005	< 0.005	2.99
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.25	1.76	2.19	0.01	0.06	—	0.06	0.06	—	0.06	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.11	227
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.59	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	503	503	0.01	0.08	0.21	527

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.49	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	210	210	< 0.005	< 0.005	< 0.005	211
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.62	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	503	503	0.01	0.08	0.01	528
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.36	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	153	153	< 0.005	< 0.005	0.03	153
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.44	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	359	359	0.01	0.06	0.07	377
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.3	25.3	< 0.005	< 0.005	0.01	25.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	59.5	59.5	< 0.005	0.01	0.01	62.4

3.31. Site Preparation (2043) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.30	1.93	13.7	16.7	0.05	0.47	—	0.47	0.44	—	0.44	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.15
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.30	1.93	13.7	16.7	0.05	0.47	—	0.47	0.44	—	0.44	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.00	4.00	< 0.005	< 0.005	< 0.005	4.20
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.64	1.38	9.76	11.9	0.03	0.34	—	0.34	0.31	—	0.31	—	3,575	3,575	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.22	7.22	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.84	2.84	< 0.005	< 0.005	< 0.005	2.98
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.25	1.78	2.18	0.01	0.06	—	0.06	0.06	—	0.06	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.60	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	226	226	< 0.005	< 0.005	0.09	226
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.58	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	499	499	0.01	0.08	0.19	523
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.48	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	210
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	500	500	0.01	0.08	< 0.005	523
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.03	152
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	357	357	0.01	0.06	0.06	373
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	59.1	59.1	< 0.005	0.01	0.01	61.8

3.32. Site Preparation (2043) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	2.30	1.93	13.7	16.7	0.05	0.47	—	0.47	0.44	—	0.44	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.15
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.30	1.93	13.7	16.7	0.05	0.47	—	0.47	0.44	—	0.44	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.00	4.00	< 0.005	< 0.005	< 0.005	4.20
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.64	1.38	9.76	11.9	0.03	0.34	—	0.34	0.31	—	0.31	—	3,575	3,575	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.84	2.84	< 0.005	< 0.005	< 0.005	2.98
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.25	1.78	2.18	0.01	0.06	—	0.06	0.06	—	0.06	—	592	592	0.02	< 0.005	—	594

Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.60	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	226	226	< 0.005	< 0.005	0.09	226
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.58	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	499	499	0.01	0.08	0.19	523
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.48	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	210
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	500	500	0.01	0.08	< 0.005	523
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.03	152
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	357	357	0.01	0.06	0.06	373
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	59.1	59.1	< 0.005	0.01	0.01	61.8

3.33. Site Preparation (2044) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.84	12.6	16.0	0.05	0.41	—	0.41	0.38	—	0.38	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.95	3.95	< 0.005	< 0.005	< 0.005	4.14
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.84	12.6	16.0	0.05	0.41	—	0.41	0.38	—	0.38	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.99	3.99	< 0.005	< 0.005	< 0.005	4.19
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.57	1.32	9.00	11.5	0.03	0.30	—	0.30	0.27	—	0.27	—	3,585	3,585	0.15	0.03	—	3,598
Dust From Material Movement	—	—	—	—	—	—	14.1	14.1	—	7.24	7.24	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.84	2.84	< 0.005	< 0.005	< 0.005	2.98
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.24	1.64	2.09	0.01	0.05	—	0.05	0.05	—	0.05	—	594	594	0.02	< 0.005	—	596
Dust From Material Movement	—	—	—	—	—	—	2.57	2.57	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	225	225	< 0.005	< 0.005	0.08	225
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.58	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	497	497	0.01	0.08	0.16	520
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	209
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	497	497	0.01	0.08	< 0.005	520
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.02	152
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	356	356	0.01	0.06	0.05	373
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.9	58.9	< 0.005	0.01	0.01	61.7

3.34. Site Preparation (2044) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.84	12.6	16.0	0.05	0.41	—	0.41	0.38	—	0.38	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.95	3.95	< 0.005	< 0.005	< 0.005	4.14
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.84	12.6	16.0	0.05	0.41	—	0.41	0.38	—	0.38	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.99	3.99	< 0.005	< 0.005	< 0.005	4.19
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.57	1.32	9.00	11.5	0.03	0.30	—	0.30	0.27	—	0.27	—	3,585	3,585	0.15	0.03	—	3,598
Dust From Material Movement	—	—	—	—	—	—	5.49	5.49	—	2.82	2.82	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.84	2.84	< 0.005	< 0.005	< 0.005	2.98
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.24	1.64	2.09	0.01	0.05	—	0.05	0.05	—	0.05	—	594	594	0.02	< 0.005	—	596
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.52	0.52	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	225	225	< 0.005	< 0.005	0.08	225
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.58	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	497	497	0.01	0.08	0.16	520
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	209
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	497	497	0.01	0.08	< 0.005	520
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.02	152

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	356	356	0.01	0.06	0.05	373
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.9	58.9	< 0.005	0.01	0.01	61.7

3.35. Site Preparation (2045) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.84	12.5	16.0	0.05	0.41	—	0.41	0.38	—	0.38	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.94	3.94	< 0.005	< 0.005	< 0.005	4.13
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.84	12.5	16.0	0.05	0.41	—	0.41	0.38	—	0.38	—	5,006	5,006	0.20	0.04	—	5,023

Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.98	3.98	< 0.005	< 0.005	< 0.005	4.18
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.56	1.31	8.94	11.4	0.03	0.29	—	0.29	0.27	—	0.27	—	3,575	3,575	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.22	7.22	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.83	2.83	< 0.005	< 0.005	< 0.005	2.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.24	1.63	2.09	0.01	0.05	—	0.05	0.05	—	0.05	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.07	225
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.57	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	494	494	0.01	0.08	0.14	518

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	208	208	< 0.005	< 0.005	< 0.005	208
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	495	495	0.01	0.08	< 0.005	518
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	353	353	< 0.005	0.06	0.04	370
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.0	25.0	< 0.005	< 0.005	< 0.005	25.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.5	58.5	< 0.005	0.01	0.01	61.3

3.36. Site Preparation (2045) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.84	12.5	16.0	0.05	0.41	—	0.41	0.38	—	0.38	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.94	3.94	< 0.005	< 0.005	< 0.005	4.13
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.19	1.84	12.5	16.0	0.05	0.41	—	0.41	0.38	—	0.38	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.98	3.98	< 0.005	< 0.005	< 0.005	4.18
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.56	1.31	8.94	11.4	0.03	0.29	—	0.29	0.27	—	0.27	—	3,575	3,575	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.83	2.83	< 0.005	< 0.005	< 0.005	2.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.24	1.63	2.09	0.01	0.05	—	0.05	0.05	—	0.05	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.07	225
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.57	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	494	494	0.01	0.08	0.14	518
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	208	208	< 0.005	< 0.005	< 0.005	208
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	495	495	0.01	0.08	< 0.005	518
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	353	353	< 0.005	0.06	0.04	370
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.0	25.0	< 0.005	< 0.005	< 0.005	25.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.5	58.5	< 0.005	0.01	0.01	61.3

3.37. Site Preparation (2046) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	2.09	1.75	11.3	15.6	0.05	0.36	—	0.36	0.33	—	0.33	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.93	3.93	< 0.005	< 0.005	< 0.005	4.12
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.09	1.75	11.3	15.6	0.05	0.36	—	0.36	0.33	—	0.33	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.97	3.97	< 0.005	< 0.005	< 0.005	4.17
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.49	1.25	8.06	11.1	0.03	0.25	—	0.25	0.23	—	0.23	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.22	7.22	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.82	2.82	< 0.005	< 0.005	< 0.005	2.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.23	1.47	2.03	0.01	0.05	—	0.05	0.04	—	0.04	—	592	592	0.02	< 0.005	—	594

Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.06	224
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.59	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	493	493	0.01	0.08	0.13	516
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	208
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.60	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	493	493	0.01	0.08	< 0.005	516
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	352	352	< 0.005	0.06	0.04	369
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.3	58.3	< 0.005	0.01	0.01	61.0

3.38. Site Preparation (2046) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.09	1.75	11.3	15.6	0.05	0.36	—	0.36	0.33	—	0.33	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.93	3.93	< 0.005	< 0.005	< 0.005	4.12
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.09	1.75	11.3	15.6	0.05	0.36	—	0.36	0.33	—	0.33	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.97	3.97	< 0.005	< 0.005	< 0.005	4.17
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.49	1.25	8.06	11.1	0.03	0.25	—	0.25	0.23	—	0.23	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.82	2.82	< 0.005	< 0.005	< 0.005	2.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.23	1.47	2.03	0.01	0.05	—	0.05	0.04	—	0.04	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.06	224
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.59	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	493	493	0.01	0.08	0.13	516
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	208
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.60	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	493	493	0.01	0.08	< 0.005	516
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	352	352	< 0.005	0.06	0.04	369
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.3	58.3	< 0.005	0.01	0.01	61.0

3.39. Site Preparation (2047) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.07	1.74	11.0	15.5	0.05	0.35	—	0.35	0.32	—	0.32	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.92	3.92	< 0.005	< 0.005	< 0.005	4.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.07	1.74	11.0	15.5	0.05	0.35	—	0.35	0.32	—	0.32	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.97	3.97	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	1.48	1.24	7.84	11.1	0.03	0.25	—	0.25	0.23	—	0.23	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.22	7.22	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.95
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.23	1.43	2.02	0.01	0.05	—	0.05	0.04	—	0.04	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.05	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.57	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	491	491	0.01	0.08	0.11	514
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	492	492	0.01	0.08	< 0.005	515
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	151

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.42	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	351	351	< 0.005	0.06	0.03	368
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	24.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.1	58.1	< 0.005	0.01	0.01	60.9

3.40. Site Preparation (2047) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.07	1.74	11.0	15.5	0.05	0.35	—	0.35	0.32	—	0.32	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.92	3.92	< 0.005	< 0.005	< 0.005	4.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.07	1.74	11.0	15.5	0.05	0.35	—	0.35	0.32	—	0.32	—	5,006	5,006	0.20	0.04	—	5,023

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.97	3.97	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.48	1.24	7.84	11.1	0.03	0.25	—	0.25	0.23	—	0.23	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.95
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.23	1.43	2.02	0.01	0.05	—	0.05	0.04	—	0.04	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.05	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.57	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	491	491	0.01	0.08	0.11	514

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	492	492	0.01	0.08	< 0.005	515
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	151
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.42	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	351	351	< 0.005	0.06	0.03	368
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	24.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.1	58.1	< 0.005	0.01	0.01	60.9

3.41. Site Preparation (2048) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.05	1.73	10.8	14.8	0.05	0.34	—	0.34	0.31	—	0.31	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.92	3.92	< 0.005	< 0.005	< 0.005	4.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.05	1.73	10.8	14.8	0.05	0.34	—	0.34	0.31	—	0.31	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.47	1.24	7.74	10.6	0.03	0.24	—	0.24	0.22	—	0.22	—	3,585	3,585	0.15	0.03	—	3,597
Dust From Material Movement	—	—	—	—	—	—	14.1	14.1	—	7.24	7.24	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.82	2.82	< 0.005	< 0.005	< 0.005	2.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.23	1.41	1.94	0.01	0.04	—	0.04	0.04	—	0.04	—	594	594	0.02	< 0.005	—	596
Dust From Material Movement	—	—	—	—	—	—	2.57	2.57	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.04	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.59	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	490	490	0.01	0.08	0.10	513
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	490	490	0.01	0.08	< 0.005	514
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	151
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.12	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	351	351	< 0.005	0.06	0.03	368
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.1	58.1	< 0.005	0.01	< 0.005	60.9

3.42. Site Preparation (2048) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	2.05	1.73	10.8	14.8	0.05	0.34	—	0.34	0.31	—	0.31	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.92	3.92	< 0.005	< 0.005	< 0.005	4.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.05	1.73	10.8	14.8	0.05	0.34	—	0.34	0.31	—	0.31	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.47	1.24	7.74	10.6	0.03	0.24	—	0.24	0.22	—	0.22	—	3,585	3,585	0.15	0.03	—	3,597
Dust From Material Movement	—	—	—	—	—	—	5.49	5.49	—	2.82	2.82	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.82	2.82	< 0.005	< 0.005	< 0.005	2.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.23	1.41	1.94	0.01	0.04	—	0.04	0.04	—	0.04	—	594	594	0.02	< 0.005	—	596

Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.52	0.52	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.04	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.59	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	490	490	0.01	0.08	0.10	513
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	490	490	0.01	0.08	< 0.005	514
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	151
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.12	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	351	351	< 0.005	0.06	0.03	368
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.1	58.1	< 0.005	0.01	< 0.005	60.9

3.43. Site Preparation (2049) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.01	1.69	9.95	14.8	0.05	0.31	—	0.31	0.29	—	0.29	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.91	3.91	< 0.005	< 0.005	< 0.005	4.10
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.01	1.69	9.95	14.8	0.05	0.31	—	0.31	0.29	—	0.29	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.44	1.21	7.10	10.5	0.03	0.22	—	0.22	0.20	—	0.20	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.22	7.22	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.95
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.22	1.30	1.92	0.01	0.04	—	0.04	0.04	—	0.04	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.57	0.17	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	489	489	0.01	0.08	0.08	512
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.60	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	489	489	0.01	0.08	< 0.005	513
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.42	0.12	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	349	349	< 0.005	0.06	0.03	366
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	57.8	57.8	< 0.005	0.01	< 0.005	60.6

3.44. Site Preparation (2049) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.01	1.69	9.95	14.8	0.05	0.31	—	0.31	0.29	—	0.29	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.91	3.91	< 0.005	< 0.005	< 0.005	4.10
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.01	1.69	9.95	14.8	0.05	0.31	—	0.31	0.29	—	0.29	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.44	1.21	7.10	10.5	0.03	0.22	—	0.22	0.20	—	0.20	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.95
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.22	1.30	1.92	0.01	0.04	—	0.04	0.04	—	0.04	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.57	0.17	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	489	489	0.01	0.08	0.08	512
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.60	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	489	489	0.01	0.08	< 0.005	513
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.42	0.12	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	349	349	< 0.005	0.06	0.03	366
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	57.8	57.8	< 0.005	0.01	< 0.005	60.6

3.45. Site Preparation (2050) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.98	1.67	9.41	14.7	0.05	0.29	—	0.29	0.27	—	0.27	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.91	3.91	< 0.005	< 0.005	< 0.005	4.10
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.98	1.67	9.41	14.7	0.05	0.29	—	0.29	0.27	—	0.27	—	5,006	5,006	0.20	0.04	—	5,023

Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.15
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.42	1.19	6.72	10.5	0.03	0.21	—	0.21	0.19	—	0.19	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.22	7.22	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.94
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.22	1.23	1.91	0.01	0.04	—	0.04	0.04	—	0.04	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.46	0.46	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	222
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.59	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	488	488	0.01	0.08	0.07	511

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	206
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.60	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	488	488	0.01	0.08	< 0.005	512
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.42	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	349	349	< 0.005	0.06	0.02	365
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	57.7	57.7	< 0.005	0.01	< 0.005	60.5

3.46. Site Preparation (2050) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.98	1.67	9.41	14.7	0.05	0.29	—	0.29	0.27	—	0.27	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.91	3.91	< 0.005	< 0.005	< 0.005	4.10
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.98	1.67	9.41	14.7	0.05	0.29	—	0.29	0.27	—	0.27	—	5,006	5,006	0.20	0.04	—	5,023
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.15
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.42	1.19	6.72	10.5	0.03	0.21	—	0.21	0.19	—	0.19	—	3,576	3,576	0.15	0.03	—	3,588
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.94
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.22	1.23	1.91	0.01	0.04	—	0.04	0.04	—	0.04	—	592	592	0.02	< 0.005	—	594
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.46	0.46	< 0.005	< 0.005	< 0.005	0.49

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	222
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.59	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	488	488	0.01	0.08	0.07	511
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	206
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.60	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	488	488	0.01	0.08	< 0.005	512
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.42	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	349	349	< 0.005	0.06	0.02	365
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	57.7	57.7	< 0.005	0.01	< 0.005	60.5

3.47. Site Preparation (2051) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.22	7.22	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.48. Site Preparation (2051) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—

Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.49. Site Preparation (2052) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	14.1	14.1	—	7.24	7.24	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.57	2.57	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.50. Site Preparation (2052) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.49	5.49	—	2.82	2.82	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.52	0.52	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.51. Site Preparation (2053) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.22	7.22	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.32	1.32	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.52. Site Preparation (2053) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.53. Site Preparation (2054) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.22	7.22	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.54. Site Preparation (2054) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.55. Site Preparation (2055) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	14.0	14.0	—	7.22	7.22	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.56	2.56	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.56. Site Preparation (2055) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.48	5.48	—	2.81	2.81	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.51	0.51	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.57. Site Preparation (2056) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	14.1	14.1	—	7.24	7.24	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.57	2.57	—	1.32	1.32	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.58. Site Preparation (2056) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.49	5.49	—	2.82	2.82	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.00	1.00	—	0.52	0.52	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.59. Site Preparation (2057) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	13.7	13.7	—	7.02	7.02	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.49	2.49	—	1.28	1.28	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—

Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.08	0.08	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.60. Site Preparation (2057) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.33	5.33	—	2.74	2.74	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.97	0.97	—	0.50	0.50	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.08	0.08	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.61. Grading (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.85	1.55	13.6	16.4	0.03	0.56	—	0.56	0.52	—	0.52	—	2,812	2,812	0.11	0.02	—	2,822
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.87	4.87	< 0.005	< 0.005	0.01	5.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.85	1.55	13.6	16.4	0.03	0.56	—	0.56	0.52	—	0.52	—	2,812	2,812	0.11	0.02	—	2,822
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.90	4.90	< 0.005	< 0.005	< 0.005	5.15
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.32	1.11	9.71	11.7	0.02	0.40	—	0.40	0.37	—	0.37	—	2,003	2,003	0.08	0.02	—	2,010
Dust From Material Movement	—	—	—	—	—	—	5.05	5.05	—	2.44	2.44	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.48	3.48	< 0.005	< 0.005	< 0.005	3.66
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.77	2.14	< 0.005	0.07	—	0.07	0.07	—	0.07	—	332	332	0.01	< 0.005	—	333
Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.58	0.58	< 0.005	< 0.005	< 0.005	0.61
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	1.16	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	264	264	< 0.005	0.01	0.79	268
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.01	0.78	0.24	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	652	652	0.02	0.10	1.37	684
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.08	0.93	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	245	245	< 0.005	0.01	0.02	248

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.01	0.82	0.25	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	652	652	0.02	0.10	0.04	684
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.06	0.69	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	178	178	< 0.005	0.01	0.24	180
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.58	0.17	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	464	464	0.02	0.07	0.42	487
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.4	29.4	< 0.005	< 0.005	0.04	29.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.11	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	76.9	76.9	< 0.005	0.01	0.07	80.7

3.62. Grading (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.85	1.55	13.6	16.4	0.03	0.56	—	0.56	0.52	—	0.52	—	2,812	2,812	0.11	0.02	—	2,822
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.87	4.87	< 0.005	< 0.005	0.01	5.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.85	1.55	13.6	16.4	0.03	0.56	—	0.56	0.52	—	0.52	—	2,812	2,812	0.11	0.02	—	2,822
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.90	4.90	< 0.005	< 0.005	< 0.005	5.15
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.32	1.11	9.71	11.7	0.02	0.40	—	0.40	0.37	—	0.37	—	2,003	2,003	0.08	0.02	—	2,010
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	3.48	3.48	< 0.005	< 0.005	< 0.005	3.66
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.77	2.14	< 0.005	0.07	—	0.07	0.07	—	0.07	—	332	332	0.01	< 0.005	—	333
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.58	0.58	< 0.005	< 0.005	< 0.005	0.61
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	1.16	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	264	264	< 0.005	0.01	0.79	268
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.04	0.01	0.78	0.24	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	652	652	0.02	0.10	1.37	684
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.08	0.93	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	245	245	< 0.005	0.01	0.02	248
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.01	0.82	0.25	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	652	652	0.02	0.10	0.04	684
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.06	0.69	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	178	178	< 0.005	0.01	0.24	180
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.58	0.17	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	464	464	0.02	0.07	0.42	487
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.4	29.4	< 0.005	< 0.005	0.04	29.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.11	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	76.9	76.9	< 0.005	0.01	0.07	80.7

3.63. Grading (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.80	1.51	12.9	16.3	0.03	0.52	—	0.52	0.48	—	0.48	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.76	4.76	< 0.005	< 0.005	0.01	5.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.80	1.51	12.9	16.3	0.03	0.52	—	0.52	0.48	—	0.48	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.80	4.80	< 0.005	< 0.005	< 0.005	5.04
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.08	9.21	11.7	0.02	0.37	—	0.37	0.34	—	0.34	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	5.06	5.06	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.41	3.41	< 0.005	< 0.005	< 0.005	3.58
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.20	1.68	2.13	< 0.005	0.07	—	0.07	0.06	—	0.06	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.56	0.56	< 0.005	< 0.005	< 0.005	0.59

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	1.09	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	260	260	< 0.005	0.01	0.71	263
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.75	0.24	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	635	635	0.02	0.10	1.26	666
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.87	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	241	241	< 0.005	0.01	0.02	244
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.79	0.24	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	635	635	0.02	0.10	0.03	665
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.65	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	175	175	< 0.005	0.01	0.22	177
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.56	0.17	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	453	453	0.02	0.07	0.39	475
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.0	29.0	< 0.005	< 0.005	0.04	29.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.10	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	75.1	75.1	< 0.005	0.01	0.06	78.7

3.64. Grading (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	1.80	1.51	12.9	16.3	0.03	0.52	—	0.52	0.48	—	0.48	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.76	4.76	< 0.005	< 0.005	0.01	5.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.80	1.51	12.9	16.3	0.03	0.52	—	0.52	0.48	—	0.48	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.80	4.80	< 0.005	< 0.005	< 0.005	5.04
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.08	9.21	11.7	0.02	0.37	—	0.37	0.34	—	0.34	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	3.41	3.41	< 0.005	< 0.005	< 0.005	3.58
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.20	1.68	2.13	< 0.005	0.07	—	0.07	0.06	—	0.06	—	332	332	0.01	< 0.005	—	334

Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.56	0.56	< 0.005	< 0.005	< 0.005	0.59
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	1.09	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	260	260	< 0.005	0.01	0.71	263
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.75	0.24	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	635	635	0.02	0.10	1.26	666
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.87	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	241	241	< 0.005	0.01	0.02	244
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.79	0.24	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	635	635	0.02	0.10	0.03	665
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.65	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	175	175	< 0.005	0.01	0.22	177
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.56	0.17	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	453	453	0.02	0.07	0.39	475
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.0	29.0	< 0.005	< 0.005	0.04	29.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.10	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	75.1	75.1	< 0.005	0.01	0.06	78.7

3.65. Grading (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.74	1.46	12.5	16.4	0.03	0.51	—	0.51	0.47	—	0.47	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.65	4.65	< 0.005	< 0.005	0.01	4.89
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.74	1.46	12.5	16.4	0.03	0.51	—	0.51	0.47	—	0.47	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.69	4.69	< 0.005	< 0.005	< 0.005	4.93
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.25	1.05	8.92	11.7	0.02	0.36	—	0.36	0.33	—	0.33	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	5.06	5.06	—	2.45	2.45	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.33	3.33	< 0.005	< 0.005	< 0.005	3.50
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.63	2.14	< 0.005	0.07	—	0.07	0.06	—	0.06	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.58
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	1.02	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	255	255	< 0.005	0.01	0.63	259
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.73	0.24	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	618	618	0.02	0.10	1.15	649
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.82	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	237	237	< 0.005	0.01	0.02	240
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.77	0.24	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	618	618	0.02	0.10	0.03	649
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.61	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	172	172	< 0.005	0.01	0.19	174
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.54	0.17	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	442	442	0.01	0.07	0.35	463
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.5	28.5	< 0.005	< 0.005	0.03	28.9

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.10	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	73.1	73.1	< 0.005	0.01	0.06	76.7

3.66. Grading (2030) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.74	1.46	12.5	16.4	0.03	0.51	—	0.51	0.47	—	0.47	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.65	4.65	< 0.005	< 0.005	0.01	4.89
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.74	1.46	12.5	16.4	0.03	0.51	—	0.51	0.47	—	0.47	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.69	4.69	< 0.005	< 0.005	< 0.005	4.93
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	1.25	1.05	8.92	11.7	0.02	0.36	—	0.36	0.33	—	0.33	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	3.33	3.33	< 0.005	< 0.005	< 0.005	3.50
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.63	2.14	< 0.005	0.07	—	0.07	0.06	—	0.06	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.55	0.55	< 0.005	< 0.005	< 0.005	0.58
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	1.02	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	255	255	< 0.005	0.01	0.63	259
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.73	0.24	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	618	618	0.02	0.10	1.15	649
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.82	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	237	237	< 0.005	0.01	0.02	240
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.77	0.24	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	618	618	0.02	0.10	0.03	649
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.61	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	172	172	< 0.005	0.01	0.19	174

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.54	0.17	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	442	442	0.01	0.07	0.35	463
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.5	28.5	< 0.005	< 0.005	0.03	28.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.10	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	73.1	73.1	< 0.005	0.01	0.06	76.7

3.67. Grading (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.70	1.43	12.1	16.2	0.03	0.49	—	0.49	0.45	—	0.45	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.55	4.55	< 0.005	< 0.005	0.01	4.79
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.70	1.43	12.1	16.2	0.03	0.49	—	0.49	0.45	—	0.45	—	2,811	2,811	0.11	0.02	—	2,820

Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.59	4.59	< 0.005	< 0.005	< 0.005	4.82
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.22	1.02	8.63	11.6	0.02	0.35	—	0.35	0.32	—	0.32	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	5.06	5.06	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.26	3.26	< 0.005	< 0.005	< 0.005	3.43
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.19	1.57	2.12	< 0.005	0.06	—	0.06	0.06	—	0.06	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.54	0.54	< 0.005	< 0.005	< 0.005	0.57
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	0.96	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	< 0.005	0.56	252
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.71	0.23	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	602	602	0.02	0.10	1.04	632

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.77	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	233	233	< 0.005	0.01	0.01	236
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.75	0.23	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	602	602	0.02	0.10	0.03	631
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.57	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	169	169	< 0.005	0.01	0.17	172
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.53	0.16	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	430	430	0.01	0.07	0.32	451
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.0	28.0	< 0.005	< 0.005	0.03	28.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.10	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	71.2	71.2	< 0.005	0.01	0.05	74.6

3.68. Grading (2031) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.70	1.43	12.1	16.2	0.03	0.49	—	0.49	0.45	—	0.45	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.55	4.55	< 0.005	< 0.005	0.01	4.79
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.70	1.43	12.1	16.2	0.03	0.49	—	0.49	0.45	—	0.45	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.59	4.59	< 0.005	< 0.005	< 0.005	4.82
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.22	1.02	8.63	11.6	0.02	0.35	—	0.35	0.32	—	0.32	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	3.26	3.26	< 0.005	< 0.005	< 0.005	3.43
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.19	1.57	2.12	< 0.005	0.06	—	0.06	0.06	—	0.06	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.54	0.54	< 0.005	< 0.005	< 0.005	0.57

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	0.96	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	< 0.005	0.56	252
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.71	0.23	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	602	602	0.02	0.10	1.04	632
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.77	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	233	233	< 0.005	0.01	0.01	236
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.75	0.23	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	602	602	0.02	0.10	0.03	631
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.57	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	169	169	< 0.005	0.01	0.17	172
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.53	0.16	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	430	430	0.01	0.07	0.32	451
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.0	28.0	< 0.005	< 0.005	0.03	28.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.10	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	71.2	71.2	< 0.005	0.01	0.05	74.6

3.69. Grading (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	1.62	1.36	11.3	15.5	0.03	0.44	—	0.44	0.41	—	0.41	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.46	4.46	< 0.005	< 0.005	< 0.005	4.69
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.62	1.36	11.3	15.5	0.03	0.44	—	0.44	0.41	—	0.41	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.50	4.50	< 0.005	< 0.005	< 0.005	4.72
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.16	0.97	8.10	11.1	0.02	0.32	—	0.32	0.29	—	0.29	—	2,013	2,013	0.08	0.02	—	2,020
Dust From Material Movement	—	—	—	—	—	—	5.07	5.07	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.20	3.20	< 0.005	< 0.005	< 0.005	3.37
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	0.18	1.48	2.03	< 0.005	0.06	—	0.06	0.05	—	0.05	—	333	333	0.01	< 0.005	—	334

Dust From Material Movement	—	—	—	—	—	—	0.93	0.93	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.53	0.53	< 0.005	< 0.005	< 0.005	0.56
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.90	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	248	248	< 0.005	< 0.005	0.49	249
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.69	0.22	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	586	586	0.02	0.10	0.93	616
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.05	0.73	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	230	230	< 0.005	0.01	0.01	233
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.73	0.23	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	587	587	0.02	0.10	0.02	615
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.54	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	167	167	< 0.005	< 0.005	0.15	168
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.52	0.16	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	420	420	0.01	0.07	0.29	441
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.7	27.7	< 0.005	< 0.005	0.03	27.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	69.5	69.5	< 0.005	0.01	0.05	73.0

3.70. Grading (2032) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.62	1.36	11.3	15.5	0.03	0.44	—	0.44	0.41	—	0.41	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.46	4.46	< 0.005	< 0.005	< 0.005	4.69
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.62	1.36	11.3	15.5	0.03	0.44	—	0.44	0.41	—	0.41	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.50	4.50	< 0.005	< 0.005	< 0.005	4.72
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.16	0.97	8.10	11.1	0.02	0.32	—	0.32	0.29	—	0.29	—	2,013	2,013	0.08	0.02	—	2,020
Dust From Material Movement	—	—	—	—	—	—	1.98	1.98	—	0.96	0.96	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	3.20	3.20	< 0.005	< 0.005	< 0.005	3.37
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	0.18	1.48	2.03	< 0.005	0.06	—	0.06	0.05	—	0.05	—	333	333	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.53	0.53	< 0.005	< 0.005	< 0.005	0.56
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.90	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	248	248	< 0.005	< 0.005	0.49	249
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.69	0.22	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	586	586	0.02	0.10	0.93	616
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.05	0.73	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	230	230	< 0.005	0.01	0.01	233
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.73	0.23	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	587	587	0.02	0.10	0.02	615
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.54	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	167	167	< 0.005	< 0.005	0.15	168
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.52	0.16	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	420	420	0.01	0.07	0.29	441
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.7	27.7	< 0.005	< 0.005	0.03	27.8

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	69.5	69.5	< 0.005	0.01	0.05	73.0

3.71. Grading (2033) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.57	1.32	10.8	15.0	0.03	0.41	—	0.41	0.38	—	0.38	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.37	4.37	< 0.005	< 0.005	< 0.005	4.60
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.57	1.32	10.8	15.0	0.03	0.41	—	0.41	0.38	—	0.38	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.41	4.41	< 0.005	< 0.005	< 0.005	4.63
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.12	0.94	7.75	10.7	0.02	0.29	—	0.29	0.27	—	0.27	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	5.06	5.06	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.14	3.14	< 0.005	< 0.005	< 0.005	3.29
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.17	1.41	1.96	< 0.005	0.05	—	0.05	0.05	—	0.05	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.52	0.52	< 0.005	< 0.005	< 0.005	0.55
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.86	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	245	245	< 0.005	< 0.005	0.44	245
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.67	0.22	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	572	572	0.02	0.09	0.82	600
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.69	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.01	227
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.71	0.22	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	573	573	0.02	0.09	0.02	600
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.51	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	165	165	< 0.005	< 0.005	0.13	165

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.50	0.16	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	409	409	0.01	0.06	0.25	429
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.3	27.3	< 0.005	< 0.005	0.02	27.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.7	67.7	< 0.005	0.01	0.04	71.0

3.72. Grading (2033) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.57	1.32	10.8	15.0	0.03	0.41	—	0.41	0.38	—	0.38	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.37	4.37	< 0.005	< 0.005	< 0.005	4.60
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.57	1.32	10.8	15.0	0.03	0.41	—	0.41	0.38	—	0.38	—	2,811	2,811	0.11	0.02	—	2,820

Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.41	4.41	< 0.005	< 0.005	< 0.005	4.63
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.12	0.94	7.75	10.7	0.02	0.29	—	0.29	0.27	—	0.27	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	3.14	3.14	< 0.005	< 0.005	< 0.005	3.29
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.17	1.41	1.96	< 0.005	0.05	—	0.05	0.05	—	0.05	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.52	0.52	< 0.005	< 0.005	< 0.005	0.55
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.86	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	245	245	< 0.005	< 0.005	0.44	245
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.67	0.22	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	572	572	0.02	0.09	0.82	600

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.69	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.01	227
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.71	0.22	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	573	573	0.02	0.09	0.02	600
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.51	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	165	165	< 0.005	< 0.005	0.13	165
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.50	0.16	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	409	409	0.01	0.06	0.25	429
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.3	27.3	< 0.005	< 0.005	0.02	27.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.7	67.7	< 0.005	0.01	0.04	71.0

3.73. Grading (2034) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.54	1.29	10.6	14.9	0.03	0.39	—	0.39	0.36	—	0.36	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.30	4.30	< 0.005	< 0.005	< 0.005	4.52
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.54	1.29	10.6	14.9	0.03	0.39	—	0.39	0.36	—	0.36	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.34	4.34	< 0.005	< 0.005	< 0.005	4.56
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.10	0.92	7.55	10.7	0.02	0.28	—	0.28	0.25	—	0.25	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	5.06	5.06	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.08	3.08	< 0.005	< 0.005	< 0.005	3.24
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.17	1.38	1.95	< 0.005	0.05	—	0.05	0.05	—	0.05	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.51	0.51	< 0.005	< 0.005	< 0.005	0.54

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.81	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	242	242	< 0.005	< 0.005	0.38	242
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.66	0.21	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	560	560	0.02	0.09	0.72	588
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.01	225
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.69	0.21	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	560	560	0.02	0.09	0.02	587
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.48	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	163	163	< 0.005	< 0.005	0.12	163
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.49	0.15	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	400	400	0.01	0.06	0.22	420
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.9	26.9	< 0.005	< 0.005	0.02	27.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	66.2	66.2	< 0.005	0.01	0.04	69.5

3.74. Grading (2034) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	1.54	1.29	10.6	14.9	0.03	0.39	—	0.39	0.36	—	0.36	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.30	4.30	< 0.005	< 0.005	< 0.005	4.52
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.54	1.29	10.6	14.9	0.03	0.39	—	0.39	0.36	—	0.36	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.34	4.34	< 0.005	< 0.005	< 0.005	4.56
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.10	0.92	7.55	10.7	0.02	0.28	—	0.28	0.25	—	0.25	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	3.08	3.08	< 0.005	< 0.005	< 0.005	3.24
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.17	1.38	1.95	< 0.005	0.05	—	0.05	0.05	—	0.05	—	332	332	0.01	< 0.005	—	334

Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.51	0.51	< 0.005	< 0.005	< 0.005	0.54
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.81	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	242	242	< 0.005	< 0.005	0.38	242
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.66	0.21	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	560	560	0.02	0.09	0.72	588
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.01	225
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.69	0.21	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	560	560	0.02	0.09	0.02	587
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.48	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	163	163	< 0.005	< 0.005	0.12	163
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.49	0.15	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	400	400	0.01	0.06	0.22	420
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.9	26.9	< 0.005	< 0.005	0.02	27.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	66.2	66.2	< 0.005	0.01	0.04	69.5

3.75. Grading (2035) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.48	1.24	10.0	14.5	0.03	0.35	—	0.35	0.32	—	0.32	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.23	4.23	< 0.005	< 0.005	< 0.005	4.45
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.48	1.24	10.0	14.5	0.03	0.35	—	0.35	0.32	—	0.32	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.27	4.27	< 0.005	< 0.005	< 0.005	4.48
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.06	0.89	7.16	10.4	0.02	0.25	—	0.25	0.23	—	0.23	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	5.06	5.06	—	2.45	2.45	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.03	3.03	< 0.005	< 0.005	< 0.005	3.19
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.31	1.89	< 0.005	0.05	—	0.05	0.04	—	0.04	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.50	0.50	< 0.005	< 0.005	< 0.005	0.53
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.77	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	239	239	< 0.005	< 0.005	0.33	240
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.64	0.21	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	548	548	0.01	0.09	0.62	575
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.01	222
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.68	0.21	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	549	549	0.01	0.09	0.02	575
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.46	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	161	161	< 0.005	< 0.005	0.10	161
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.48	0.15	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	392	392	0.01	0.06	0.19	411
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.6	26.6	< 0.005	< 0.005	0.02	26.7

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	64.9	64.9	< 0.005	0.01	0.03	68.0

3.76. Grading (2035) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.48	1.24	10.0	14.5	0.03	0.35	—	0.35	0.32	—	0.32	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.23	4.23	< 0.005	< 0.005	< 0.005	4.45
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.48	1.24	10.0	14.5	0.03	0.35	—	0.35	0.32	—	0.32	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.27	4.27	< 0.005	< 0.005	< 0.005	4.48
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	1.06	0.89	7.16	10.4	0.02	0.25	—	0.25	0.23	—	0.23	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	3.03	3.03	< 0.005	< 0.005	< 0.005	3.19
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.31	1.89	< 0.005	0.05	—	0.05	0.04	—	0.04	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.50	0.50	< 0.005	< 0.005	< 0.005	0.53
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.77	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	239	239	< 0.005	< 0.005	0.33	240
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.64	0.21	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	548	548	0.01	0.09	0.62	575
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.01	222
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.68	0.21	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	549	549	0.01	0.09	0.02	575
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.46	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	161	161	< 0.005	< 0.005	0.10	161

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.48	0.15	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	392	392	0.01	0.06	0.19	411
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.6	26.6	< 0.005	< 0.005	0.02	26.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	64.9	64.9	< 0.005	0.01	0.03	68.0

3.77. Grading (2036) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.43	1.20	9.52	14.1	0.03	0.32	—	0.32	0.30	—	0.30	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.17	4.17	< 0.005	< 0.005	< 0.005	4.38
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.43	1.20	9.52	14.1	0.03	0.32	—	0.32	0.30	—	0.30	—	2,811	2,811	0.11	0.02	—	2,820

Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.21	4.21	< 0.005	< 0.005	< 0.005	4.43
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.02	0.86	6.82	10.1	0.02	0.23	—	0.23	0.21	—	0.21	—	2,013	2,013	0.08	0.02	—	2,020
Dust From Material Movement	—	—	—	—	—	—	5.07	5.07	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	3.00	3.00	< 0.005	< 0.005	< 0.005	3.16
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.24	1.85	< 0.005	0.04	—	0.04	0.04	—	0.04	—	333	333	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.93	0.93	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.50	0.50	< 0.005	< 0.005	< 0.005	0.52
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.73	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	236	236	< 0.005	< 0.005	0.28	237
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.63	0.20	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	538	538	0.01	0.09	0.53	565

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	219	219	< 0.005	< 0.005	0.01	220
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.67	0.21	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	539	539	0.01	0.09	0.01	565
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.44	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	160	160	< 0.005	< 0.005	0.09	160
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.47	0.15	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	386	386	0.01	0.06	0.17	405
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.4	26.4	< 0.005	< 0.005	0.01	26.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	63.9	63.9	< 0.005	0.01	0.03	67.0

3.78. Grading (2036) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.43	1.20	9.52	14.1	0.03	0.32	—	0.32	0.30	—	0.30	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.17	4.17	< 0.005	< 0.005	< 0.005	4.38
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.43	1.20	9.52	14.1	0.03	0.32	—	0.32	0.30	—	0.30	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.21	4.21	< 0.005	< 0.005	< 0.005	4.43
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.02	0.86	6.82	10.1	0.02	0.23	—	0.23	0.21	—	0.21	—	2,013	2,013	0.08	0.02	—	2,020
Dust From Material Movement	—	—	—	—	—	—	1.98	1.98	—	0.96	0.96	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	3.00	3.00	< 0.005	< 0.005	< 0.005	3.16
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.24	1.85	< 0.005	0.04	—	0.04	0.04	—	0.04	—	333	333	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.50	0.50	< 0.005	< 0.005	< 0.005	0.52

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.73	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	236	236	< 0.005	< 0.005	0.28	237
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.63	0.20	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	538	538	0.01	0.09	0.53	565
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	219	219	< 0.005	< 0.005	0.01	220
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.67	0.21	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	539	539	0.01	0.09	0.01	565
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.44	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	160	160	< 0.005	< 0.005	0.09	160
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.47	0.15	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	386	386	0.01	0.06	0.17	405
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.4	26.4	< 0.005	< 0.005	0.01	26.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	63.9	63.9	< 0.005	0.01	0.03	67.0

3.79. Grading (2037) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	1.42	1.19	9.44	14.2	0.03	0.32	—	0.32	0.29	—	0.29	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.13	4.13	< 0.005	< 0.005	< 0.005	4.33
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.42	1.19	9.44	14.2	0.03	0.32	—	0.32	0.29	—	0.29	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.17	4.17	< 0.005	< 0.005	< 0.005	4.38
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.01	0.85	6.74	10.1	0.02	0.23	—	0.23	0.21	—	0.21	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	5.06	5.06	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.96	2.96	< 0.005	< 0.005	< 0.005	3.11
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.16	1.23	1.85	< 0.005	0.04	—	0.04	0.04	—	0.04	—	332	332	0.01	< 0.005	—	334

Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.49	0.49	< 0.005	< 0.005	< 0.005	0.52
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.71	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	234	234	< 0.005	< 0.005	0.24	235
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.62	0.20	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	530	530	0.01	0.09	0.46	557
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.56	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	217	217	< 0.005	< 0.005	0.01	218
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.66	0.20	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	530	530	0.01	0.09	0.01	557
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.42	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	158	158	< 0.005	< 0.005	0.08	158
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.46	0.14	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	379	379	0.01	0.06	0.14	397
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.1	26.1	< 0.005	< 0.005	0.01	26.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	62.7	62.7	< 0.005	0.01	0.02	65.8

3.80. Grading (2037) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.42	1.19	9.44	14.2	0.03	0.32	—	0.32	0.29	—	0.29	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.13	4.13	< 0.005	< 0.005	< 0.005	4.33
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.42	1.19	9.44	14.2	0.03	0.32	—	0.32	0.29	—	0.29	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.17	4.17	< 0.005	< 0.005	< 0.005	4.38
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.01	0.85	6.74	10.1	0.02	0.23	—	0.23	0.21	—	0.21	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.96	2.96	< 0.005	< 0.005	< 0.005	3.11
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.16	1.23	1.85	< 0.005	0.04	—	0.04	0.04	—	0.04	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.49	0.49	< 0.005	< 0.005	< 0.005	0.52
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.71	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	234	234	< 0.005	< 0.005	0.24	235
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.62	0.20	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	530	530	0.01	0.09	0.46	557
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.56	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	217	217	< 0.005	< 0.005	0.01	218
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.66	0.20	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	530	530	0.01	0.09	0.01	557
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.42	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	158	158	< 0.005	< 0.005	0.08	158
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.46	0.14	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	379	379	0.01	0.06	0.14	397
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.1	26.1	< 0.005	< 0.005	0.01	26.2

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	62.7	62.7	< 0.005	0.01	0.02	65.8

3.81. Grading (2038) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.36	1.15	8.83	13.6	0.03	0.29	—	0.29	0.27	—	0.27	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.08	4.08	< 0.005	< 0.005	< 0.005	4.29
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.36	1.15	8.83	13.6	0.03	0.29	—	0.29	0.27	—	0.27	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.13	4.13	< 0.005	< 0.005	< 0.005	4.33
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.97	0.82	6.30	9.75	0.02	0.21	—	0.21	0.19	—	0.19	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	5.06	5.06	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.93	2.93	< 0.005	< 0.005	< 0.005	3.07
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.15	1.15	1.78	< 0.005	0.04	—	0.04	0.03	—	0.03	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.49	0.49	< 0.005	< 0.005	< 0.005	0.51
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.68	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	232	232	< 0.005	< 0.005	0.21	233
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	523	523	0.01	0.08	0.39	548
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.54	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	216	216	< 0.005	< 0.005	0.01	216
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.65	0.20	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	523	523	0.01	0.08	0.01	548
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.40	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	157	157	< 0.005	< 0.005	0.06	157

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.46	0.14	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	373	373	0.01	0.06	0.12	391
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.9	25.9	< 0.005	< 0.005	0.01	26.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	61.8	61.8	< 0.005	0.01	0.02	64.8

3.82. Grading (2038) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.36	1.15	8.83	13.6	0.03	0.29	—	0.29	0.27	—	0.27	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.08	4.08	< 0.005	< 0.005	< 0.005	4.29
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.36	1.15	8.83	13.6	0.03	0.29	—	0.29	0.27	—	0.27	—	2,811	2,811	0.11	0.02	—	2,820

Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.13	4.13	< 0.005	< 0.005	< 0.005	4.33
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.97	0.82	6.30	9.75	0.02	0.21	—	0.21	0.19	—	0.19	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.93	2.93	< 0.005	< 0.005	< 0.005	3.07
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.15	1.15	1.78	< 0.005	0.04	—	0.04	0.03	—	0.03	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.49	0.49	< 0.005	< 0.005	< 0.005	0.51
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.68	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	232	232	< 0.005	< 0.005	0.21	233
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	523	523	0.01	0.08	0.39	548

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.54	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	216	216	< 0.005	< 0.005	0.01	216
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.65	0.20	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	523	523	0.01	0.08	0.01	548
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.40	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	157	157	< 0.005	< 0.005	0.06	157
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.46	0.14	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	373	373	0.01	0.06	0.12	391
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.9	25.9	< 0.005	< 0.005	0.01	26.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	61.8	61.8	< 0.005	0.01	0.02	64.8

3.83. Grading (2039) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.34	1.13	8.59	13.5	0.03	0.28	—	0.28	0.26	—	0.26	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.05	4.05	< 0.005	< 0.005	< 0.005	4.25
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.34	1.13	8.59	13.5	0.03	0.28	—	0.28	0.26	—	0.26	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.09	4.09	< 0.005	< 0.005	< 0.005	4.30
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.96	0.80	6.14	9.67	0.02	0.20	—	0.20	0.18	—	0.18	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	5.06	5.06	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.90	2.90	< 0.005	< 0.005	< 0.005	3.05
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.15	1.12	1.76	< 0.005	0.04	—	0.04	0.03	—	0.03	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.50

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.66	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	231	231	< 0.005	< 0.005	0.18	231
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.60	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	516	516	0.01	0.08	0.34	541
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.52	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	214	214	< 0.005	< 0.005	< 0.005	214
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.64	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	517	517	0.01	0.08	0.01	542
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.39	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	156
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.45	0.14	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	369	369	0.01	0.06	0.10	387
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	61.1	61.1	< 0.005	0.01	0.02	64.0

3.84. Grading (2039) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	1.34	1.13	8.59	13.5	0.03	0.28	—	0.28	0.26	—	0.26	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.05	4.05	< 0.005	< 0.005	< 0.005	4.25
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.34	1.13	8.59	13.5	0.03	0.28	—	0.28	0.26	—	0.26	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.09	4.09	< 0.005	< 0.005	< 0.005	4.30
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.96	0.80	6.14	9.67	0.02	0.20	—	0.20	0.18	—	0.18	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.90	2.90	< 0.005	< 0.005	< 0.005	3.05
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.15	1.12	1.76	< 0.005	0.04	—	0.04	0.03	—	0.03	—	332	332	0.01	< 0.005	—	334

Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.66	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	231	231	< 0.005	< 0.005	0.18	231
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.60	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	516	516	0.01	0.08	0.34	541
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.52	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	214	214	< 0.005	< 0.005	< 0.005	214
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.64	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	517	517	0.01	0.08	0.01	542
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.39	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	156
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.45	0.14	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	369	369	0.01	0.06	0.10	387
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	61.1	61.1	< 0.005	0.01	0.02	64.0

3.85. Grading (2040) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.33	1.12	8.50	13.5	0.03	0.27	—	0.27	0.25	—	0.25	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.02	4.02	< 0.005	< 0.005	< 0.005	4.22
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.33	1.12	8.50	13.5	0.03	0.27	—	0.27	0.25	—	0.25	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.06	4.06	< 0.005	< 0.005	< 0.005	4.27
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.95	0.80	6.09	9.66	0.02	0.20	—	0.20	0.18	—	0.18	—	2,013	2,013	0.08	0.02	—	2,020
Dust From Material Movement	—	—	—	—	—	—	5.07	5.07	—	2.45	2.45	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.89	2.89	< 0.005	< 0.005	< 0.005	3.03
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.15	1.11	1.76	< 0.005	0.04	—	0.04	0.03	—	0.03	—	333	333	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.93	0.93	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	229	229	< 0.005	< 0.005	0.15	230
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.60	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	511	511	0.01	0.08	0.29	536
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	213	213	< 0.005	< 0.005	< 0.005	213
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.63	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	511	511	0.01	0.08	0.01	536
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.38	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	155
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.45	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	366	366	0.01	0.06	0.09	384
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.6	25.6	< 0.005	< 0.005	0.01	25.7

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	60.6	60.6	< 0.005	0.01	0.01	63.6

3.86. Grading (2040) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.33	1.12	8.50	13.5	0.03	0.27	—	0.27	0.25	—	0.25	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.02	4.02	< 0.005	< 0.005	< 0.005	4.22
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.33	1.12	8.50	13.5	0.03	0.27	—	0.27	0.25	—	0.25	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.06	4.06	< 0.005	< 0.005	< 0.005	4.27
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.95	0.80	6.09	9.66	0.02	0.20	—	0.20	0.18	—	0.18	—	2,013	2,013	0.08	0.02	—	2,020
Dust From Material Movement	—	—	—	—	—	—	1.98	1.98	—	0.96	0.96	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.89	2.89	< 0.005	< 0.005	< 0.005	3.03
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.15	1.11	1.76	< 0.005	0.04	—	0.04	0.03	—	0.03	—	333	333	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	229	229	< 0.005	< 0.005	0.15	230
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.60	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	511	511	0.01	0.08	0.29	536
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	213	213	< 0.005	< 0.005	< 0.005	213
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.63	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	511	511	0.01	0.08	0.01	536
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.38	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	155

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.45	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	366	366	0.01	0.06	0.09	384
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.6	25.6	< 0.005	< 0.005	0.01	25.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	60.6	60.6	< 0.005	0.01	0.01	63.6

3.87. Grading (2041) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	8.05	13.2	0.03	0.24	—	0.24	0.23	—	0.23	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.00	4.00	< 0.005	< 0.005	< 0.005	4.20
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	8.05	13.2	0.03	0.24	—	0.24	0.23	—	0.23	—	2,811	2,811	0.11	0.02	—	2,820

Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.04	4.04	< 0.005	< 0.005	< 0.005	4.24
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.77	5.75	9.46	0.02	0.17	—	0.17	0.16	—	0.16	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	5.06	5.06	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.87	2.87	< 0.005	< 0.005	< 0.005	3.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.05	1.73	< 0.005	0.03	—	0.03	0.03	—	0.03	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.62	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	228	228	< 0.005	< 0.005	0.13	228
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.61	0.20	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	506	506	0.01	0.08	0.25	531

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.50	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	211	211	< 0.005	< 0.005	< 0.005	212
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.63	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	507	507	0.01	0.08	0.01	532
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.37	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	154	154	< 0.005	< 0.005	0.04	154
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.44	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	362	362	0.01	0.06	0.08	380
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.4	25.4	< 0.005	< 0.005	0.01	25.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	59.9	59.9	< 0.005	0.01	0.01	62.8

3.88. Grading (2041) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	8.05	13.2	0.03	0.24	—	0.24	0.23	—	0.23	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.00	4.00	< 0.005	< 0.005	< 0.005	4.20
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	8.05	13.2	0.03	0.24	—	0.24	0.23	—	0.23	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.04	4.04	< 0.005	< 0.005	< 0.005	4.24
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.77	5.75	9.46	0.02	0.17	—	0.17	0.16	—	0.16	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.87	2.87	< 0.005	< 0.005	< 0.005	3.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.05	1.73	< 0.005	0.03	—	0.03	0.03	—	0.03	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.50

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.62	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	228	228	< 0.005	< 0.005	0.13	228
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.61	0.20	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	506	506	0.01	0.08	0.25	531
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.50	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	211	211	< 0.005	< 0.005	< 0.005	212
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.63	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	507	507	0.01	0.08	0.01	532
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.37	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	154	154	< 0.005	< 0.005	0.04	154
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.44	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	362	362	0.01	0.06	0.08	380
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.4	25.4	< 0.005	< 0.005	0.01	25.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	59.9	59.9	< 0.005	0.01	0.01	62.8

3.89. Grading (2042) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	1.26	1.06	7.88	13.1	0.03	0.24	—	0.24	0.22	—	0.22	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.98	3.98	< 0.005	< 0.005	< 0.005	4.17
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.26	1.06	7.88	13.1	0.03	0.24	—	0.24	0.22	—	0.22	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.02	4.02	< 0.005	< 0.005	< 0.005	4.22
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.90	0.76	5.63	9.36	0.02	0.17	—	0.17	0.15	—	0.15	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	5.06	5.06	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.85	2.85	< 0.005	< 0.005	< 0.005	2.99
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.03	1.71	< 0.005	0.03	—	0.03	0.03	—	0.03	—	332	332	0.01	< 0.005	—	334

Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.11	227
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.59	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	503	503	0.01	0.08	0.21	527
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.49	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	210	210	< 0.005	< 0.005	< 0.005	211
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.62	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	503	503	0.01	0.08	0.01	528
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.36	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	153	153	< 0.005	< 0.005	0.03	153
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.44	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	359	359	0.01	0.06	0.07	377
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.3	25.3	< 0.005	< 0.005	0.01	25.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	59.5	59.5	< 0.005	0.01	0.01	62.4

3.90. Grading (2042) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.26	1.06	7.88	13.1	0.03	0.24	—	0.24	0.22	—	0.22	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.98	3.98	< 0.005	< 0.005	< 0.005	4.17
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.26	1.06	7.88	13.1	0.03	0.24	—	0.24	0.22	—	0.22	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.02	4.02	< 0.005	< 0.005	< 0.005	4.22
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.90	0.76	5.63	9.36	0.02	0.17	—	0.17	0.15	—	0.15	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.85	2.85	< 0.005	< 0.005	< 0.005	2.99
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.03	1.71	< 0.005	0.03	—	0.03	0.03	—	0.03	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.50
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.11	227
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.59	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	503	503	0.01	0.08	0.21	527
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.49	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	210	210	< 0.005	< 0.005	< 0.005	211
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.62	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	503	503	0.01	0.08	0.01	528
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.36	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	153	153	< 0.005	< 0.005	0.03	153
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.44	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	359	359	0.01	0.06	0.07	377
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.3	25.3	< 0.005	< 0.005	0.01	25.4

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	59.5	59.5	< 0.005	0.01	0.01	62.4

3.91. Grading (2043) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.25	1.05	7.88	13.1	0.03	0.23	—	0.23	0.21	—	0.21	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.15
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.25	1.05	7.88	13.1	0.03	0.23	—	0.23	0.21	—	0.21	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.00	4.00	< 0.005	< 0.005	< 0.005	4.20
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.90	0.75	5.63	9.33	0.02	0.16	—	0.16	0.15	—	0.15	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	5.06	5.06	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.84	2.84	< 0.005	< 0.005	< 0.005	2.98
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.03	1.70	< 0.005	0.03	—	0.03	0.03	—	0.03	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.60	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	226	226	< 0.005	< 0.005	0.09	226
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.58	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	499	499	0.01	0.08	0.19	523
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.48	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	210
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	500	500	0.01	0.08	< 0.005	523
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.03	152

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	357	357	0.01	0.06	0.06	373
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	59.1	59.1	< 0.005	0.01	0.01	61.8

3.92. Grading (2043) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.25	1.05	7.88	13.1	0.03	0.23	—	0.23	0.21	—	0.21	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.15
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.25	1.05	7.88	13.1	0.03	0.23	—	0.23	0.21	—	0.21	—	2,811	2,811	0.11	0.02	—	2,820

Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.00	4.00	< 0.005	< 0.005	< 0.005	4.20
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.90	0.75	5.63	9.33	0.02	0.16	—	0.16	0.15	—	0.15	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.84	2.84	< 0.005	< 0.005	< 0.005	2.98
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.03	1.70	< 0.005	0.03	—	0.03	0.03	—	0.03	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.60	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	226	226	< 0.005	< 0.005	0.09	226
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.58	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	499	499	0.01	0.08	0.19	523

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.48	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	210
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.19	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	500	500	0.01	0.08	< 0.005	523
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.03	152
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	357	357	0.01	0.06	0.06	373
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	59.1	59.1	< 0.005	0.01	0.01	61.8

3.93. Grading (2044) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.21	1.02	7.48	12.8	0.03	0.21	—	0.21	0.19	—	0.19	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.95	3.95	< 0.005	< 0.005	< 0.005	4.14
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.21	1.02	7.48	12.8	0.03	0.21	—	0.21	0.19	—	0.19	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.99	3.99	< 0.005	< 0.005	< 0.005	4.19
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.87	0.73	5.35	9.19	0.02	0.15	—	0.15	0.14	—	0.14	—	2,013	2,013	0.08	0.02	—	2,020
Dust From Material Movement	—	—	—	—	—	—	5.07	5.07	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.84	2.84	< 0.005	< 0.005	< 0.005	2.98
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	0.98	1.68	< 0.005	0.03	—	0.03	0.02	—	0.02	—	333	333	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.93	0.93	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	225	225	< 0.005	< 0.005	0.08	225
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.58	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	497	497	0.01	0.08	0.16	520
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	209
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	497	497	0.01	0.08	< 0.005	520
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.02	152
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	356	356	0.01	0.06	0.05	373
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.9	58.9	< 0.005	0.01	0.01	61.7

3.94. Grading (2044) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	1.21	1.02	7.48	12.8	0.03	0.21	—	0.21	0.19	—	0.19	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.95	3.95	< 0.005	< 0.005	< 0.005	4.14
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.21	1.02	7.48	12.8	0.03	0.21	—	0.21	0.19	—	0.19	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.99	3.99	< 0.005	< 0.005	< 0.005	4.19
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.87	0.73	5.35	9.19	0.02	0.15	—	0.15	0.14	—	0.14	—	2,013	2,013	0.08	0.02	—	2,020
Dust From Material Movement	—	—	—	—	—	—	1.98	1.98	—	0.96	0.96	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.84	2.84	< 0.005	< 0.005	< 0.005	2.98
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	0.98	1.68	< 0.005	0.03	—	0.03	0.02	—	0.02	—	333	333	0.01	< 0.005	—	334

Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	225	225	< 0.005	< 0.005	0.08	225
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.58	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	497	497	0.01	0.08	0.16	520
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	209
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	497	497	0.01	0.08	< 0.005	520
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.02	152
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	356	356	0.01	0.06	0.05	373
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.9	58.9	< 0.005	0.01	0.01	61.7

3.95. Grading (2045) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.21	1.02	7.42	12.8	0.03	0.20	—	0.20	0.19	—	0.19	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.94	3.94	< 0.005	< 0.005	< 0.005	4.13
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.21	1.02	7.42	12.8	0.03	0.20	—	0.20	0.19	—	0.19	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.98	3.98	< 0.005	< 0.005	< 0.005	4.18
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.86	0.73	5.30	9.16	0.02	0.15	—	0.15	0.13	—	0.13	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	5.06	5.06	—	2.45	2.45	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.83	2.83	< 0.005	< 0.005	< 0.005	2.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	0.97	1.67	< 0.005	0.03	—	0.03	0.02	—	0.02	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.07	225
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.57	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	494	494	0.01	0.08	0.14	518
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	208	208	< 0.005	< 0.005	< 0.005	208
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	495	495	0.01	0.08	< 0.005	518
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	353	353	< 0.005	0.06	0.04	370
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.0	25.0	< 0.005	< 0.005	< 0.005	25.1

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.5	58.5	< 0.005	0.01	0.01	61.3

3.96. Grading (2045) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.21	1.02	7.42	12.8	0.03	0.20	—	0.20	0.19	—	0.19	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.94	3.94	< 0.005	< 0.005	< 0.005	4.13
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.21	1.02	7.42	12.8	0.03	0.20	—	0.20	0.19	—	0.19	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.98	3.98	< 0.005	< 0.005	< 0.005	4.18
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.86	0.73	5.30	9.16	0.02	0.15	—	0.15	0.13	—	0.13	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.83	2.83	< 0.005	< 0.005	< 0.005	2.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.13	0.97	1.67	< 0.005	0.03	—	0.03	0.02	—	0.02	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.07	225
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.57	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	494	494	0.01	0.08	0.14	518
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	208	208	< 0.005	< 0.005	< 0.005	208
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	495	495	0.01	0.08	< 0.005	518
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	353	353	< 0.005	0.06	0.04	370
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.0	25.0	< 0.005	< 0.005	< 0.005	25.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.5	58.5	< 0.005	0.01	0.01	61.3

3.97. Grading (2046) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.17	0.98	6.96	12.7	0.03	0.18	—	0.18	0.17	—	0.17	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.93	3.93	< 0.005	< 0.005	< 0.005	4.12
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.17	0.98	6.96	12.7	0.03	0.18	—	0.18	0.17	—	0.17	—	2,811	2,811	0.11	0.02	—	2,820

Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.97	3.97	< 0.005	< 0.005	< 0.005	4.17
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.84	0.70	4.97	9.05	0.02	0.13	—	0.13	0.12	—	0.12	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	5.06	5.06	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.82	2.82	< 0.005	< 0.005	< 0.005	2.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.91	1.65	< 0.005	0.02	—	0.02	0.02	—	0.02	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.06	224
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.59	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	493	493	0.01	0.08	0.13	516

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	208
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.60	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	493	493	0.01	0.08	< 0.005	516
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	352	352	< 0.005	0.06	0.04	369
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.3	58.3	< 0.005	0.01	0.01	61.0

3.98. Grading (2046) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.17	0.98	6.96	12.7	0.03	0.18	—	0.18	0.17	—	0.17	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.93	3.93	< 0.005	< 0.005	< 0.005	4.12
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.17	0.98	6.96	12.7	0.03	0.18	—	0.18	0.17	—	0.17	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.97	3.97	< 0.005	< 0.005	< 0.005	4.17
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.84	0.70	4.97	9.05	0.02	0.13	—	0.13	0.12	—	0.12	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.82	2.82	< 0.005	< 0.005	< 0.005	2.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.91	1.65	< 0.005	0.02	—	0.02	0.02	—	0.02	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.06	224
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.59	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	493	493	0.01	0.08	0.13	516
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	208
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.60	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	493	493	0.01	0.08	< 0.005	516
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	352	352	< 0.005	0.06	0.04	369
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.3	58.3	< 0.005	0.01	0.01	61.0

3.99. Grading (2047) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	1.16	0.97	6.81	12.7	0.03	0.18	—	0.18	0.16	—	0.16	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.92	3.92	< 0.005	< 0.005	< 0.005	4.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.16	0.97	6.81	12.7	0.03	0.18	—	0.18	0.16	—	0.16	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.97	3.97	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.83	0.70	4.86	9.04	0.02	0.13	—	0.13	0.12	—	0.12	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	5.06	5.06	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.95
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.89	1.65	< 0.005	0.02	—	0.02	0.02	—	0.02	—	332	332	0.01	< 0.005	—	334

Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.05	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.57	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	491	491	0.01	0.08	0.11	514
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	492	492	0.01	0.08	< 0.005	515
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	151
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.42	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	351	351	< 0.005	0.06	0.03	368
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	24.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.1	58.1	< 0.005	0.01	0.01	60.9

3.100. Grading (2047) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.16	0.97	6.81	12.7	0.03	0.18	—	0.18	0.16	—	0.16	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.92	3.92	< 0.005	< 0.005	< 0.005	4.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.16	0.97	6.81	12.7	0.03	0.18	—	0.18	0.16	—	0.16	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.97	3.97	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.83	0.70	4.86	9.04	0.02	0.13	—	0.13	0.12	—	0.12	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.95
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.89	1.65	< 0.005	0.02	—	0.02	0.02	—	0.02	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.05	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.57	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	491	491	0.01	0.08	0.11	514
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	492	492	0.01	0.08	< 0.005	515
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	151
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.42	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	351	351	< 0.005	0.06	0.03	368
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	24.9

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.1	58.1	< 0.005	0.01	0.01	60.9

3.101. Grading (2048) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.14	0.96	6.65	12.4	0.03	0.17	—	0.17	0.16	—	0.16	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.92	3.92	< 0.005	< 0.005	< 0.005	4.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.14	0.96	6.65	12.4	0.03	0.17	—	0.17	0.16	—	0.16	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.82	0.69	4.76	8.88	0.02	0.12	—	0.12	0.11	—	0.11	—	2,013	2,013	0.08	0.02	—	2,020
Dust From Material Movement	—	—	—	—	—	—	5.07	5.07	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.82	2.82	< 0.005	< 0.005	< 0.005	2.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.87	1.62	< 0.005	0.02	—	0.02	0.02	—	0.02	—	333	333	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.93	0.93	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.04	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.59	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	490	490	0.01	0.08	0.10	513
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	490	490	0.01	0.08	< 0.005	514
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	151

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.12	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	351	351	< 0.005	0.06	0.03	368
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.1	58.1	< 0.005	0.01	< 0.005	60.9

3.102. Grading (2048) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.14	0.96	6.65	12.4	0.03	0.17	—	0.17	0.16	—	0.16	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.92	3.92	< 0.005	< 0.005	< 0.005	4.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.14	0.96	6.65	12.4	0.03	0.17	—	0.17	0.16	—	0.16	—	2,811	2,811	0.11	0.02	—	2,820

Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	4.76	8.88	0.02	0.12	—	0.12	0.11	—	0.11	—	2,013	2,013	0.08	0.02	—	2,020
Dust From Material Movement	—	—	—	—	—	—	1.98	1.98	—	0.96	0.96	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.82	2.82	< 0.005	< 0.005	< 0.005	2.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	0.87	1.62	< 0.005	0.02	—	0.02	0.02	—	0.02	—	333	333	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.04	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.59	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	490	490	0.01	0.08	0.10	513

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.61	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	490	490	0.01	0.08	< 0.005	514
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	151
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.43	0.12	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	351	351	< 0.005	0.06	0.03	368
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	58.1	58.1	< 0.005	0.01	< 0.005	60.9

3.103. Grading (2049) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13	0.95	6.33	12.4	0.03	0.16	—	0.16	0.15	—	0.15	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.91	3.91	< 0.005	< 0.005	< 0.005	4.10
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13	0.95	6.33	12.4	0.03	0.16	—	0.16	0.15	—	0.15	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	0.68	4.52	8.84	0.02	0.11	—	0.11	0.11	—	0.11	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	5.06	5.06	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.95
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.83	1.61	< 0.005	0.02	—	0.02	0.02	—	0.02	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.57	0.17	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	489	489	0.01	0.08	0.08	512
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.60	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	489	489	0.01	0.08	< 0.005	513
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.42	0.12	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	349	349	< 0.005	0.06	0.03	366
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	57.8	57.8	< 0.005	0.01	< 0.005	60.6

3.104. Grading (2049) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	1.13	0.95	6.33	12.4	0.03	0.16	—	0.16	0.15	—	0.15	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.91	3.91	< 0.005	< 0.005	< 0.005	4.10
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13	0.95	6.33	12.4	0.03	0.16	—	0.16	0.15	—	0.15	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	0.68	4.52	8.84	0.02	0.11	—	0.11	0.11	—	0.11	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.95
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.83	1.61	< 0.005	0.02	—	0.02	0.02	—	0.02	—	332	332	0.01	< 0.005	—	334

Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	223
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.57	0.17	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	489	489	0.01	0.08	0.08	512
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	207
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.60	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	489	489	0.01	0.08	< 0.005	513
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.42	0.12	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	349	349	< 0.005	0.06	0.03	366
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	57.8	57.8	< 0.005	0.01	< 0.005	60.6

3.105. Grading (2050) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.11	0.94	6.13	12.3	0.03	0.15	—	0.15	0.14	—	0.14	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.91	3.91	< 0.005	< 0.005	< 0.005	4.10
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.11	0.94	6.13	12.3	0.03	0.15	—	0.15	0.14	—	0.14	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.15
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	0.67	4.38	8.82	0.02	0.11	—	0.11	0.10	—	0.10	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	5.06	5.06	—	2.45	2.45	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.94
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.80	1.61	< 0.005	0.02	—	0.02	0.02	—	0.02	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.46	0.46	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	222
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.59	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	488	488	0.01	0.08	0.07	511
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	206
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.60	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	488	488	0.01	0.08	< 0.005	512
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.42	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	349	349	< 0.005	0.06	0.02	365
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	57.7	57.7	< 0.005	0.01	< 0.005	60.5

3.106. Grading (2050) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.11	0.94	6.13	12.3	0.03	0.15	—	0.15	0.14	—	0.14	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.91	3.91	< 0.005	< 0.005	< 0.005	4.10
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.11	0.94	6.13	12.3	0.03	0.15	—	0.15	0.14	—	0.14	—	2,811	2,811	0.11	0.02	—	2,820
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	3.96	3.96	< 0.005	< 0.005	< 0.005	4.15
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.80	0.67	4.38	8.82	0.02	0.11	—	0.11	0.10	—	0.10	—	2,008	2,008	0.08	0.02	—	2,015
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	2.81	2.81	< 0.005	< 0.005	< 0.005	2.94
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.80	1.61	< 0.005	0.02	—	0.02	0.02	—	0.02	—	332	332	0.01	< 0.005	—	334
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.46	0.46	< 0.005	< 0.005	< 0.005	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	222
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.59	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	488	488	0.01	0.08	0.07	511
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	206
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.60	0.18	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	488	488	0.01	0.08	< 0.005	512
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.42	0.13	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	349	349	< 0.005	0.06	0.02	365
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.08	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	57.7	57.7	< 0.005	0.01	< 0.005	60.5

3.107. Grading (2051) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	—	5.06	5.06	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.108. Grading (2051) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.109. Grading (2052) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.07	5.07	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.93	0.93	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.110. Grading (2052) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.98	1.98	—	0.96	0.96	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.111. Grading (2053) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.06	5.06	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—

Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.112. Grading (2053) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.113. Grading (2054) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.06	5.06	—	2.45	2.45	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.114. Grading (2054) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.115. Grading (2055) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.06	5.06	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.92	0.92	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.116. Grading (2055) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.97	1.97	—	0.95	0.95	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.117. Grading (2056) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	5.07	5.07	—	2.45	2.45	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.93	0.93	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.118. Grading (2056) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.98	1.98	—	0.96	0.96	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.36	0.36	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.09	0.09	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.119. Grading (2057) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.37	0.37	—	0.04	0.04	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	4.92	4.92	—	2.38	2.38	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.90	0.90	—	0.43	0.43	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.08	0.08	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.120. Grading (2057) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	1.92	1.92	—	0.93	0.93	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	—	0.35	0.35	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.13	0.13	—	0.03	0.03	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.08	0.08	—	0.02	0.02	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—

3.121. Building Construction (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.28	0.23	2.07	3.29	0.01	0.05	—	0.05	0.04	—	0.04	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.23	2.07	3.29	0.01	0.05	—	0.05	0.04	—	0.04	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.17	1.47	2.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	329	329	0.01	< 0.005	—	330
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.27	0.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	54.4	54.4	< 0.005	< 0.005	—	54.6
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	1.16	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	264	264	< 0.005	0.01	0.79	268
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	59.8	59.8	< 0.005	0.01	0.13	62.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.08	0.93	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	245	245	< 0.005	0.01	0.02	248
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	59.9	59.9	< 0.005	0.01	< 0.005	62.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.06	0.69	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	178	178	< 0.005	0.01	0.24	180
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	42.6	42.6	< 0.005	0.01	0.04	44.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.4	29.4	< 0.005	< 0.005	0.04	29.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.06	7.06	< 0.005	< 0.005	0.01	7.36
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.122. Building Construction (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.23	2.07	3.29	0.01	0.05	—	0.05	0.04	—	0.04	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.28	0.23	2.07	3.29	0.01	0.05	—	0.05	0.04	—	0.04	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.17	1.47	2.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	329	329	0.01	< 0.005	—	330
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.27	0.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	54.4	54.4	< 0.005	< 0.005	—	54.6
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	1.16	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	264	264	< 0.005	0.01	0.79	268
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	59.8	59.8	< 0.005	0.01	0.13	62.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.08	0.93	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	245	245	< 0.005	0.01	0.02	248
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	59.9	59.9	< 0.005	0.01	< 0.005	62.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.05	0.05	0.06	0.69	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	178	178	< 0.005	0.01	0.24	180
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	42.6	42.6	< 0.005	0.01	0.04	44.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.4	29.4	< 0.005	< 0.005	0.04	29.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.06	7.06	< 0.005	< 0.005	0.01	7.36
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.123. Building Construction (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.22	2.03	3.29	0.01	0.04	—	0.04	0.04	—	0.04	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.22	2.03	3.29	0.01	0.04	—	0.04	0.04	—	0.04	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.19	0.16	1.45	2.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.26	0.43	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	1.09	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	260	260	< 0.005	0.01	0.71	263
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	58.2	58.2	< 0.005	0.01	0.12	60.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.87	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	241	241	< 0.005	0.01	0.02	244
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	58.2	58.2	< 0.005	0.01	< 0.005	60.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.65	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	175	175	< 0.005	0.01	0.22	177
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	41.6	41.6	< 0.005	0.01	0.04	43.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.0	29.0	< 0.005	< 0.005	0.04	29.4
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.88	6.88	< 0.005	< 0.005	0.01	7.19

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.124. Building Construction (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.22	2.03	3.29	0.01	0.04	—	0.04	0.04	—	0.04	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.22	2.03	3.29	0.01	0.04	—	0.04	0.04	—	0.04	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.45	2.35	< 0.005	0.03	—	0.03	0.03	—	0.03	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.04	0.03	0.26	0.43	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	1.09	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	260	260	< 0.005	0.01	0.71	263
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	58.2	58.2	< 0.005	0.01	0.12	60.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.87	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	241	241	< 0.005	0.01	0.02	244
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	58.2	58.2	< 0.005	0.01	< 0.005	60.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.65	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	175	175	< 0.005	0.01	0.22	177
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	41.6	41.6	< 0.005	0.01	0.04	43.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.0	29.0	< 0.005	< 0.005	0.04	29.4
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.88	6.88	< 0.005	< 0.005	0.01	7.19
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.125. Building Construction (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.22	2.00	3.28	0.01	0.04	—	0.04	0.03	—	0.03	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.22	2.00	3.28	0.01	0.04	—	0.04	0.03	—	0.03	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.15	1.43	2.34	< 0.005	0.03	—	0.03	0.02	—	0.02	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.26	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	1.02	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	255	255	< 0.005	0.01	0.63	259
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	56.4	56.4	< 0.005	0.01	0.11	58.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.82	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	237	237	< 0.005	0.01	0.02	240
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	56.5	56.5	< 0.005	0.01	< 0.005	58.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.61	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	172	172	< 0.005	0.01	0.19	174
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	40.3	40.3	< 0.005	0.01	0.03	42.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.5	28.5	< 0.005	< 0.005	0.03	28.9
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.67	6.67	< 0.005	< 0.005	0.01	6.97
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.126. Building Construction (2030) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.26	0.22	2.00	3.28	0.01	0.04	—	0.04	0.03	—	0.03	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.22	2.00	3.28	0.01	0.04	—	0.04	0.03	—	0.03	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.15	1.43	2.34	< 0.005	0.03	—	0.03	0.02	—	0.02	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.26	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	1.02	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	255	255	< 0.005	0.01	0.63	259
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	56.4	56.4	< 0.005	0.01	0.11	58.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.82	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	237	237	< 0.005	0.01	0.02	240
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	56.5	56.5	< 0.005	0.01	< 0.005	58.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.61	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	172	172	< 0.005	0.01	0.19	174
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	40.3	40.3	< 0.005	0.01	0.03	42.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.5	28.5	< 0.005	< 0.005	0.03	28.9
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.67	6.67	< 0.005	< 0.005	0.01	6.97
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.127. Building Construction (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	0.21	1.97	3.27	0.01	0.03	—	0.03	0.03	—	0.03	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.25	0.21	1.97	3.27	0.01	0.03	—	0.03	0.03	—	0.03	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.18	0.15	1.41	2.34	< 0.005	0.02	—	0.02	0.02	—	0.02	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.03	0.03	0.26	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	0.96	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	< 0.005	0.56	252
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	54.6	54.6	< 0.005	0.01	0.09	57.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.77	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	233	233	< 0.005	0.01	0.01	236
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	54.6	54.6	< 0.005	0.01	< 0.005	57.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.05	0.04	0.04	0.57	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	169	169	< 0.005	0.01	0.17	172
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	39.0	39.0	< 0.005	0.01	0.03	40.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.0	28.0	< 0.005	< 0.005	0.03	28.4
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.46	6.46	< 0.005	< 0.005	< 0.005	6.75
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.128. Building Construction (2031) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.25	0.21	1.97	3.27	0.01	0.03	—	0.03	0.03	—	0.03	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.25	0.21	1.97	3.27	0.01	0.03	—	0.03	0.03	—	0.03	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.18	0.15	1.41	2.34	< 0.005	0.02	—	0.02	0.02	—	0.02	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.26	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	0.96	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	< 0.005	0.56	252
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	54.6	54.6	< 0.005	0.01	0.09	57.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.77	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	233	233	< 0.005	0.01	0.01	236
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	54.6	54.6	< 0.005	0.01	< 0.005	57.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.57	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	169	169	< 0.005	0.01	0.17	172
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	39.0	39.0	< 0.005	0.01	0.03	40.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.0	28.0	< 0.005	< 0.005	0.03	28.4
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.46	6.46	< 0.005	< 0.005	< 0.005	6.75

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.129. Building Construction (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	0.20	1.94	3.27	0.01	0.03	—	0.03	0.03	—	0.03	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	0.20	1.94	3.27	0.01	0.03	—	0.03	0.03	—	0.03	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.15	1.39	2.34	< 0.005	0.02	—	0.02	0.02	—	0.02	—	330	330	0.01	< 0.005	—	332
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.03	0.03	0.25	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.7	54.7	< 0.005	< 0.005	—	54.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.90	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	248	248	< 0.005	< 0.005	0.49	249
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	52.8	52.8	< 0.005	0.01	0.08	55.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.05	0.73	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	230	230	< 0.005	0.01	0.01	233
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	52.8	52.8	< 0.005	0.01	< 0.005	55.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.54	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	167	167	< 0.005	< 0.005	0.15	168
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	37.8	37.8	< 0.005	0.01	0.02	39.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.7	27.7	< 0.005	< 0.005	0.03	27.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.26	6.26	< 0.005	< 0.005	< 0.005	6.53
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.130. Building Construction (2032) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	0.20	1.94	3.27	0.01	0.03	—	0.03	0.03	—	0.03	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	0.20	1.94	3.27	0.01	0.03	—	0.03	0.03	—	0.03	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.15	1.39	2.34	< 0.005	0.02	—	0.02	0.02	—	0.02	—	330	330	0.01	< 0.005	—	332
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.25	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.7	54.7	< 0.005	< 0.005	—	54.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.90	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	248	248	< 0.005	< 0.005	0.49	249
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	52.8	52.8	< 0.005	0.01	0.08	55.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.05	0.73	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	230	230	< 0.005	0.01	0.01	233
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	52.8	52.8	< 0.005	0.01	< 0.005	55.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.54	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	167	167	< 0.005	< 0.005	0.15	168
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	37.8	37.8	< 0.005	0.01	0.02	39.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.7	27.7	< 0.005	< 0.005	0.03	27.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.26	6.26	< 0.005	< 0.005	< 0.005	6.53
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.131. Building Construction (2033) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.24	0.20	1.92	3.27	0.01	0.03	—	0.03	0.02	—	0.02	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.92	3.27	0.01	0.03	—	0.03	0.02	—	0.02	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.37	2.33	< 0.005	0.02	—	0.02	0.02	—	0.02	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.25	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.86	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	245	245	< 0.005	< 0.005	0.44	245
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	51.0	51.0	< 0.005	0.01	0.07	53.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.69	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.01	227
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	51.1	51.1	< 0.005	0.01	< 0.005	53.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.51	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	165	165	< 0.005	< 0.005	0.13	165
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	36.5	36.5	< 0.005	0.01	0.02	38.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.3	27.3	< 0.005	< 0.005	0.02	27.4
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.04	6.04	< 0.005	< 0.005	< 0.005	6.31
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.132. Building Construction (2033) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.92	3.27	0.01	0.03	—	0.03	0.02	—	0.02	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.24	0.20	1.92	3.27	0.01	0.03	—	0.03	0.02	—	0.02	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.37	2.33	< 0.005	0.02	—	0.02	0.02	—	0.02	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.25	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.86	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	245	245	< 0.005	< 0.005	0.44	245
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	51.0	51.0	< 0.005	0.01	0.07	53.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.69	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.01	227
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	51.1	51.1	< 0.005	0.01	< 0.005	53.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.04	0.04	0.03	0.51	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	165	165	< 0.005	< 0.005	0.13	165
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	36.5	36.5	< 0.005	0.01	0.02	38.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.3	27.3	< 0.005	< 0.005	0.02	27.4
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.04	6.04	< 0.005	< 0.005	< 0.005	6.31
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.133. Building Construction (2034) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.91	3.26	0.01	0.02	—	0.02	0.02	—	0.02	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.91	3.26	0.01	0.02	—	0.02	0.02	—	0.02	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.17	0.14	1.36	2.33	< 0.005	0.02	—	0.02	0.02	—	0.02	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.25	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.81	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	242	242	< 0.005	< 0.005	0.38	242
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	49.4	49.4	< 0.005	0.01	0.06	51.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.01	225
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	49.4	49.4	< 0.005	0.01	< 0.005	51.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.48	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	163	163	< 0.005	< 0.005	0.12	163
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	35.3	35.3	< 0.005	0.01	0.02	36.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.9	26.9	< 0.005	< 0.005	0.02	27.0
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.84	5.84	< 0.005	< 0.005	< 0.005	6.09

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.134. Building Construction (2034) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.91	3.26	0.01	0.02	—	0.02	0.02	—	0.02	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.91	3.26	0.01	0.02	—	0.02	0.02	—	0.02	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.36	2.33	< 0.005	0.02	—	0.02	0.02	—	0.02	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.03	0.03	0.25	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.81	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	242	242	< 0.005	< 0.005	0.38	242
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	49.4	49.4	< 0.005	0.01	0.06	51.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.01	225
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	49.4	49.4	< 0.005	0.01	< 0.005	51.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.48	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	163	163	< 0.005	< 0.005	0.12	163
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	35.3	35.3	< 0.005	0.01	0.02	36.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.9	26.9	< 0.005	< 0.005	0.02	27.0
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.84	5.84	< 0.005	< 0.005	< 0.005	6.09
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.135. Building Construction (2035) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.89	3.26	0.01	0.02	—	0.02	0.02	—	0.02	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.89	3.26	0.01	0.02	—	0.02	0.02	—	0.02	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.35	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.25	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.77	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	239	239	< 0.005	< 0.005	0.33	240
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	47.8	47.8	< 0.005	0.01	0.05	50.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.01	222
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	47.8	47.8	< 0.005	0.01	< 0.005	50.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.46	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	161	161	< 0.005	< 0.005	0.10	161
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.1	34.1	< 0.005	0.01	0.02	35.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.6	26.6	< 0.005	< 0.005	0.02	26.7
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.65	5.65	< 0.005	< 0.005	< 0.005	5.91
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.136. Building Construction (2035) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.24	0.20	1.89	3.26	0.01	0.02	—	0.02	0.02	—	0.02	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.89	3.26	0.01	0.02	—	0.02	0.02	—	0.02	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.35	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.25	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.77	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	239	239	< 0.005	< 0.005	0.33	240
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	47.8	47.8	< 0.005	0.01	0.05	50.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.01	222
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	47.8	47.8	< 0.005	0.01	< 0.005	50.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.46	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	161	161	< 0.005	< 0.005	0.10	161
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.1	34.1	< 0.005	0.01	0.02	35.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.6	26.6	< 0.005	< 0.005	0.02	26.7
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.65	5.65	< 0.005	< 0.005	< 0.005	5.91
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.137. Building Construction (2036) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.88	3.26	0.01	0.02	—	0.02	0.02	—	0.02	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.23	0.19	1.88	3.26	0.01	0.02	—	0.02	0.02	—	0.02	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.17	0.14	1.35	2.34	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	332
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.03	0.03	0.25	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.7	54.7	< 0.005	< 0.005	—	54.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.73	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	236	236	< 0.005	< 0.005	0.28	237
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	46.3	46.3	< 0.005	0.01	0.04	48.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	219	219	< 0.005	< 0.005	0.01	220
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	46.4	46.4	< 0.005	0.01	< 0.005	48.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.03	0.03	0.02	0.44	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	160	160	< 0.005	< 0.005	0.09	160
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	33.2	33.2	< 0.005	0.01	0.01	34.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.4	26.4	< 0.005	< 0.005	0.01	26.5
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.50	5.50	< 0.005	< 0.005	< 0.005	5.75
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.138. Building Construction (2036) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.23	0.19	1.88	3.26	0.01	0.02	—	0.02	0.02	—	0.02	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.23	0.19	1.88	3.26	0.01	0.02	—	0.02	0.02	—	0.02	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.17	0.14	1.35	2.34	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	332
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.25	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.7	54.7	< 0.005	< 0.005	—	54.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.73	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	236	236	< 0.005	< 0.005	0.28	237
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	46.3	46.3	< 0.005	0.01	0.04	48.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	219	219	< 0.005	< 0.005	0.01	220
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	46.4	46.4	< 0.005	0.01	< 0.005	48.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.44	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	160	160	< 0.005	< 0.005	0.09	160
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	33.2	33.2	< 0.005	0.01	0.01	34.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.4	26.4	< 0.005	< 0.005	0.01	26.5
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.50	5.50	< 0.005	< 0.005	< 0.005	5.75

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.139. Building Construction (2037) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.87	3.26	0.01	0.02	—	0.02	0.02	—	0.02	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.87	3.26	0.01	0.02	—	0.02	0.02	—	0.02	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.33	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.03	0.03	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.71	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	234	234	< 0.005	< 0.005	0.24	235
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	45.1	45.1	< 0.005	0.01	0.03	47.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.56	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	217	217	< 0.005	< 0.005	0.01	218
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	45.1	45.1	< 0.005	0.01	< 0.005	47.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.42	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	158	158	< 0.005	< 0.005	0.08	158
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	32.2	32.2	< 0.005	< 0.005	0.01	33.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.1	26.1	< 0.005	< 0.005	0.01	26.2
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.33	5.33	< 0.005	< 0.005	< 0.005	5.57
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.140. Building Construction (2037) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.87	3.26	0.01	0.02	—	0.02	0.02	—	0.02	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.87	3.26	0.01	0.02	—	0.02	0.02	—	0.02	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.33	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.71	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	234	234	< 0.005	< 0.005	0.24	235
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	45.1	45.1	< 0.005	0.01	0.03	47.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.56	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	217	217	< 0.005	< 0.005	0.01	218
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	45.1	45.1	< 0.005	0.01	< 0.005	47.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.42	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	158	158	< 0.005	< 0.005	0.08	158
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	32.2	32.2	< 0.005	< 0.005	0.01	33.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.1	26.1	< 0.005	< 0.005	0.01	26.2
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.33	5.33	< 0.005	< 0.005	< 0.005	5.57
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.141. Building Construction (2038) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.23	0.19	1.85	3.25	0.01	0.02	—	0.02	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.85	3.25	0.01	0.02	—	0.02	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.32	2.32	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.68	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	232	232	< 0.005	< 0.005	0.21	233
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	43.9	43.9	< 0.005	0.01	0.03	45.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.54	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	216	216	< 0.005	< 0.005	0.01	216
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	43.9	43.9	< 0.005	0.01	< 0.005	45.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.40	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	157	157	< 0.005	< 0.005	0.06	157
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	31.4	31.4	< 0.005	< 0.005	0.01	32.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.9	25.9	< 0.005	< 0.005	0.01	26.0
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.19	5.19	< 0.005	< 0.005	< 0.005	5.43
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.142. Building Construction (2038) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.85	3.25	0.01	0.02	—	0.02	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.23	0.19	1.85	3.25	0.01	0.02	—	0.02	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.32	2.32	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.68	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	232	232	< 0.005	< 0.005	0.21	233
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	43.9	43.9	< 0.005	0.01	0.03	45.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.54	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	216	216	< 0.005	< 0.005	0.01	216
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	43.9	43.9	< 0.005	0.01	< 0.005	45.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.03	0.03	0.02	0.40	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	157	157	< 0.005	< 0.005	0.06	157
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	31.4	31.4	< 0.005	< 0.005	0.01	32.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.9	25.9	< 0.005	< 0.005	0.01	26.0
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.19	5.19	< 0.005	< 0.005	< 0.005	5.43
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.143. Building Construction (2039) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.84	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.84	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.16	0.14	1.32	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.66	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	231	231	< 0.005	< 0.005	0.18	231
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	42.9	42.9	< 0.005	0.01	0.02	44.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.52	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	214	214	< 0.005	< 0.005	< 0.005	214
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	42.9	42.9	< 0.005	0.01	< 0.005	44.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.39	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	156
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.6	30.6	< 0.005	< 0.005	0.01	32.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.07	5.07	< 0.005	< 0.005	< 0.005	5.31

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.144. Building Construction (2039) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.84	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.84	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.32	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.03	0.02	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.66	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	231	231	< 0.005	< 0.005	0.18	231
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	42.9	42.9	< 0.005	0.01	0.02	44.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.52	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	214	214	< 0.005	< 0.005	< 0.005	214
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	42.9	42.9	< 0.005	0.01	< 0.005	44.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.39	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	156
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.6	30.6	< 0.005	< 0.005	0.01	32.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.07	5.07	< 0.005	< 0.005	< 0.005	5.31
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.145. Building Construction (2040) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.84	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.84	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.31	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	332
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.24	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.7	54.7	< 0.005	< 0.005	—	54.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	229	229	< 0.005	< 0.005	0.15	230
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	42.0	42.0	< 0.005	0.01	0.02	43.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	213	213	< 0.005	< 0.005	< 0.005	213
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	42.0	42.0	< 0.005	0.01	< 0.005	43.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.38	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	155
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.1	30.1	< 0.005	< 0.005	0.01	31.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.6	25.6	< 0.005	< 0.005	0.01	25.7
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.98	4.98	< 0.005	< 0.005	< 0.005	5.20
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.146. Building Construction (2040) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.23	0.19	1.84	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.84	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.31	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	332
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.24	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.7	54.7	< 0.005	< 0.005	—	54.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	229	229	< 0.005	< 0.005	0.15	230
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	42.0	42.0	< 0.005	0.01	0.02	43.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	213	213	< 0.005	< 0.005	< 0.005	213
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	42.0	42.0	< 0.005	0.01	< 0.005	43.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.38	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	155
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.1	30.1	< 0.005	< 0.005	0.01	31.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.6	25.6	< 0.005	< 0.005	0.01	25.7
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.98	4.98	< 0.005	< 0.005	< 0.005	5.20
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.147. Building Construction (2041) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.83	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.23	0.19	1.83	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.16	0.14	1.31	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.03	0.02	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.62	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	228	228	< 0.005	< 0.005	0.13	228
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	41.1	41.1	< 0.005	0.01	0.01	43.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.50	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	211	211	< 0.005	< 0.005	< 0.005	212
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	41.2	41.2	< 0.005	0.01	< 0.005	43.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.03	0.02	0.02	0.37	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	154	154	< 0.005	< 0.005	0.04	154
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.4	29.4	< 0.005	< 0.005	< 0.005	30.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.4	25.4	< 0.005	< 0.005	0.01	25.5
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.87	4.87	< 0.005	< 0.005	< 0.005	5.09
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.148. Building Construction (2041) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.23	0.19	1.83	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.23	0.19	1.83	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.16	0.14	1.31	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.62	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	228	228	< 0.005	< 0.005	0.13	228
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	41.1	41.1	< 0.005	0.01	0.01	43.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.50	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	211	211	< 0.005	< 0.005	< 0.005	212
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	41.2	41.2	< 0.005	0.01	< 0.005	43.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.37	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	154	154	< 0.005	< 0.005	0.04	154
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.4	29.4	< 0.005	< 0.005	< 0.005	30.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.4	25.4	< 0.005	< 0.005	0.01	25.5
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.87	4.87	< 0.005	< 0.005	< 0.005	5.09

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.149. Building Construction (2042) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.83	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.83	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.31	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.03	0.02	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.11	227
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	40.4	40.4	< 0.005	0.01	0.01	42.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.49	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	210	210	< 0.005	< 0.005	< 0.005	211
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	40.5	40.5	< 0.005	0.01	< 0.005	42.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.36	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	153	153	< 0.005	< 0.005	0.03	153
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	28.9	28.9	< 0.005	< 0.005	< 0.005	30.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.3	25.3	< 0.005	< 0.005	0.01	25.4
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.78	4.78	< 0.005	< 0.005	< 0.005	5.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.150. Building Construction (2042) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.83	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.83	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.31	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.11	227
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	40.4	40.4	< 0.005	0.01	0.01	42.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.49	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	210	210	< 0.005	< 0.005	< 0.005	211
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	40.5	40.5	< 0.005	0.01	< 0.005	42.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.36	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	153	153	< 0.005	< 0.005	0.03	153
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	28.9	28.9	< 0.005	< 0.005	< 0.005	30.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.3	25.3	< 0.005	< 0.005	0.01	25.4
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.78	4.78	< 0.005	< 0.005	< 0.005	5.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.151. Building Construction (2043) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.23	0.19	1.83	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.83	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.31	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.60	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	226	226	< 0.005	< 0.005	0.09	226
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	39.8	39.8	< 0.005	0.01	0.01	41.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.48	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	210
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	39.8	39.8	< 0.005	0.01	< 0.005	41.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.03	152
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	28.4	28.4	< 0.005	< 0.005	< 0.005	29.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.71	4.71	< 0.005	< 0.005	< 0.005	4.93
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.152. Building Construction (2043) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.83	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.23	0.19	1.83	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.31	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.60	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	226	226	< 0.005	< 0.005	0.09	226
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	39.8	39.8	< 0.005	0.01	0.01	41.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.48	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	210
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	39.8	39.8	< 0.005	0.01	< 0.005	41.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.03	152
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	28.4	28.4	< 0.005	< 0.005	< 0.005	29.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.71	4.71	< 0.005	< 0.005	< 0.005	4.93
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.153. Building Construction (2044) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.83	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.83	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.16	0.14	1.31	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	332
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.24	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.7	54.7	< 0.005	< 0.005	—	54.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	225	225	< 0.005	< 0.005	0.08	225
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	39.2	39.2	< 0.005	0.01	0.01	40.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	209
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	39.3	39.3	< 0.005	0.01	< 0.005	41.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.02	152
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	28.1	28.1	< 0.005	< 0.005	< 0.005	29.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.65	4.65	< 0.005	< 0.005	< 0.005	4.86

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.154. Building Construction (2044) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.83	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.83	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.31	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	332
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.03	0.02	0.24	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.7	54.7	< 0.005	< 0.005	—	54.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	225	225	< 0.005	< 0.005	0.08	225
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	39.2	39.2	< 0.005	0.01	0.01	40.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	209
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	39.3	39.3	< 0.005	0.01	< 0.005	41.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.02	152
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	28.1	28.1	< 0.005	< 0.005	< 0.005	29.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.65	4.65	< 0.005	< 0.005	< 0.005	4.86
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.155. Building Construction (2045) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.83	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.83	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.30	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.07	225
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.7	38.7	< 0.005	0.01	0.01	40.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	208	208	< 0.005	< 0.005	< 0.005	208
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.8	38.8	< 0.005	0.01	< 0.005	40.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.7	27.7	< 0.005	< 0.005	< 0.005	28.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.0	25.0	< 0.005	< 0.005	< 0.005	25.1
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.58	4.58	< 0.005	< 0.005	< 0.005	4.79
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.156. Building Construction (2045) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.23	0.19	1.83	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.83	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.30	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.07	225
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.7	38.7	< 0.005	0.01	0.01	40.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	208	208	< 0.005	< 0.005	< 0.005	208
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.8	38.8	< 0.005	0.01	< 0.005	40.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.7	27.7	< 0.005	< 0.005	< 0.005	28.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.0	25.0	< 0.005	< 0.005	< 0.005	25.1
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.58	4.58	< 0.005	< 0.005	< 0.005	4.79
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.157. Building Construction (2046) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.82	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.23	0.19	1.82	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.16	0.14	1.30	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.03	0.02	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.06	224
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.3	38.3	< 0.005	0.01	< 0.005	40.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	208
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.4	38.4	< 0.005	0.01	< 0.005	40.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.4	27.4	< 0.005	< 0.005	< 0.005	28.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.53	4.53	< 0.005	< 0.005	< 0.005	4.74
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.158. Building Construction (2046) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.23	0.19	1.82	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.23	0.19	1.82	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.16	0.14	1.30	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.06	224
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.3	38.3	< 0.005	0.01	< 0.005	40.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	208
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.4	38.4	< 0.005	0.01	< 0.005	40.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.4	27.4	< 0.005	< 0.005	< 0.005	28.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.53	4.53	< 0.005	< 0.005	< 0.005	4.74

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.159. Building Construction (2047) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.82	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.82	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.30	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.03	0.02	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.05	223
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.0	38.0	< 0.005	0.01	< 0.005	39.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.0	38.0	< 0.005	0.01	< 0.005	39.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	151
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.1	27.1	< 0.005	< 0.005	< 0.005	28.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	24.9
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.49	4.49	< 0.005	< 0.005	< 0.005	4.69
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.160. Building Construction (2047) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.82	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.82	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.30	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.05	223
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.0	38.0	< 0.005	0.01	< 0.005	39.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.0	38.0	< 0.005	0.01	< 0.005	39.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	151
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.1	27.1	< 0.005	< 0.005	< 0.005	28.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	24.9
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.49	4.49	< 0.005	< 0.005	< 0.005	4.69
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.161. Building Construction (2048) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.23	0.19	1.82	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.82	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.30	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	332
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.24	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.7	54.7	< 0.005	< 0.005	—	54.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.04	223
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.6	37.6	< 0.005	0.01	< 0.005	39.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.7	37.7	< 0.005	0.01	< 0.005	39.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	151
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.0	27.0	< 0.005	< 0.005	< 0.005	28.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.47	4.47	< 0.005	< 0.005	< 0.005	4.67
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.162. Building Construction (2048) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.82	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.23	0.19	1.82	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.30	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	332
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.24	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.7	54.7	< 0.005	< 0.005	—	54.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.04	223
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.6	37.6	< 0.005	0.01	< 0.005	39.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.7	37.7	< 0.005	0.01	< 0.005	39.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	151
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.0	27.0	< 0.005	< 0.005	< 0.005	28.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.47	4.47	< 0.005	< 0.005	< 0.005	4.67
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.163. Building Construction (2049) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.82	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.82	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.16	0.14	1.30	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	223
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.4	37.4	< 0.005	0.01	< 0.005	39.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	207
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.4	37.4	< 0.005	0.01	< 0.005	39.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.7	26.7	< 0.005	< 0.005	< 0.005	27.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.42	4.42	< 0.005	< 0.005	< 0.005	4.63

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.164. Building Construction (2049) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.82	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.82	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.30	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.03	0.02	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	223
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.4	37.4	< 0.005	0.01	< 0.005	39.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	207
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.4	37.4	< 0.005	0.01	< 0.005	39.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.7	26.7	< 0.005	< 0.005	< 0.005	27.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.42	4.42	< 0.005	< 0.005	< 0.005	4.63
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.165. Building Construction (2050) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.82	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.82	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.30	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	222
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.2	37.2	< 0.005	0.01	< 0.005	38.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	206
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.2	37.2	< 0.005	0.01	< 0.005	38.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.6	26.6	< 0.005	< 0.005	< 0.005	27.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.40	4.40	< 0.005	< 0.005	< 0.005	4.60
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.166. Building Construction (2050) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.23	0.19	1.82	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.19	1.82	3.26	0.01	0.01	—	0.01	0.01	—	0.01	—	461	461	0.02	< 0.005	—	463
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.30	2.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	330	330	0.01	< 0.005	—	331
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.24	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	54.6	54.6	< 0.005	< 0.005	—	54.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	222
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.2	37.2	< 0.005	0.01	< 0.005	38.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	206
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.2	37.2	< 0.005	0.01	< 0.005	38.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.6	26.6	< 0.005	< 0.005	< 0.005	27.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.40	4.40	< 0.005	< 0.005	< 0.005	4.60
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.167. Building Construction (2051) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.168. Building Construction (2051) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—

Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.169. Building Construction (2052) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.170. Building Construction (2052) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.171. Building Construction (2053) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.172. Building Construction (2053) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.173. Building Construction (2054) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.174. Building Construction (2054) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.175. Building Construction (2055) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.176. Building Construction (2055) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—

Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.177. Building Construction (2056) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.178. Building Construction (2056) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.179. Building Construction (2057) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.180. Building Construction (2057) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.181. Architectural Coating (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.58	0.80	< 0.005	0.01	—	0.01	0.01	—	0.01	—	95.1	95.1	< 0.005	< 0.005	—	95.4
Architectural Coatings	0.16	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.11	0.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.7	15.7	< 0.005	< 0.005	—	15.8

Architect Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	1.16	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	264	264	< 0.005	0.01	0.79	268
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	59.8	59.8	< 0.005	0.01	0.13	62.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.08	0.93	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	245	245	< 0.005	0.01	0.02	248
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	59.9	59.9	< 0.005	0.01	< 0.005	62.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.06	0.69	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	178	178	< 0.005	0.01	0.24	180
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	42.6	42.6	< 0.005	0.01	0.04	44.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.4	29.4	< 0.005	< 0.005	0.04	29.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.06	7.06	< 0.005	< 0.005	0.01	7.36
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.182. Architectural Coating (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.58	0.80	< 0.005	0.01	—	0.01	0.01	—	0.01	—	95.1	95.1	< 0.005	< 0.005	—	95.4
Architectural Coatings	0.16	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.11	0.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.7	15.7	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	1.16	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	264	264	< 0.005	0.01	0.79	268
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	59.8	59.8	< 0.005	0.01	0.13	62.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.08	0.93	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	245	245	< 0.005	0.01	0.02	248
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	59.9	59.9	< 0.005	0.01	< 0.005	62.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.06	0.69	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	178	178	< 0.005	0.01	0.24	180
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	42.6	42.6	< 0.005	0.01	0.04	44.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.4	29.4	< 0.005	< 0.005	0.04	29.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.06	7.06	< 0.005	< 0.005	0.01	7.36
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.183. Architectural Coating (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.57	0.79	< 0.005	0.01	—	0.01	0.01	—	0.01	—	95.4	95.4	< 0.005	< 0.005	—	95.7

Architect Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	1.09	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	260	260	< 0.005	0.01	0.71	263
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	58.2	58.2	< 0.005	0.01	0.12	60.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.87	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	241	241	< 0.005	0.01	0.02	244
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	58.2	58.2	< 0.005	0.01	< 0.005	60.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.65	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	175	175	< 0.005	0.01	0.22	177
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	41.6	41.6	< 0.005	0.01	0.04	43.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.0	29.0	< 0.005	< 0.005	0.04	29.4
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.88	6.88	< 0.005	< 0.005	0.01	7.19
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.184. Architectural Coating (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.57	0.79	< 0.005	0.01	—	0.01	0.01	—	0.01	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	1.09	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	260	260	< 0.005	0.01	0.71	263
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	58.2	58.2	< 0.005	0.01	0.12	60.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.87	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	241	241	< 0.005	0.01	0.02	244
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	58.2	58.2	< 0.005	0.01	< 0.005	60.8

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.65	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	175	175	< 0.005	0.01	0.22	177
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	41.6	41.6	< 0.005	0.01	0.04	43.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.0	29.0	< 0.005	< 0.005	0.04	29.4
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.88	6.88	< 0.005	< 0.005	0.01	7.19
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.185. Architectural Coating (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.78	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.12	0.10	0.78	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.56	0.79	< 0.005	0.01	—	0.01	0.01	—	0.01	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	1.02	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	255	255	< 0.005	0.01	0.63	259

Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	56.4	56.4	< 0.005	0.01	0.11	58.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.82	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	237	237	< 0.005	0.01	0.02	240
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	56.5	56.5	< 0.005	0.01	< 0.005	58.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.61	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	172	172	< 0.005	0.01	0.19	174
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	40.3	40.3	< 0.005	0.01	0.03	42.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.5	28.5	< 0.005	< 0.005	0.03	28.9
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.67	6.67	< 0.005	< 0.005	0.01	6.97
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.186. Architectural Coating (2030) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.78	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134

Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.78	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.56	0.79	< 0.005	0.01	—	0.01	0.01	—	0.01	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8

Architectural Coating	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	1.02	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	255	255	< 0.005	0.01	0.63	259
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	56.4	56.4	< 0.005	0.01	0.11	58.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.82	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	237	237	< 0.005	0.01	0.02	240
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	56.5	56.5	< 0.005	0.01	< 0.005	58.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.61	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	172	172	< 0.005	0.01	0.19	174
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	40.3	40.3	< 0.005	0.01	0.03	42.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.5	28.5	< 0.005	< 0.005	0.03	28.9
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.67	6.67	< 0.005	< 0.005	0.01	6.97
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.187. Architectural Coating (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.78	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.78	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.55	0.79	< 0.005	0.01	—	0.01	0.01	—	0.01	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	0.96	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	< 0.005	0.56	252
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	54.6	54.6	< 0.005	0.01	0.09	57.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.77	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	233	233	< 0.005	0.01	0.01	236
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	54.6	54.6	< 0.005	0.01	< 0.005	57.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.57	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	169	169	< 0.005	0.01	0.17	172
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	39.0	39.0	< 0.005	0.01	0.03	40.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.0	28.0	< 0.005	< 0.005	0.03	28.4

Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.46	6.46	< 0.005	< 0.005	< 0.005	6.75
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.188. Architectural Coating (2031) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.78	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.78	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.08	0.07	0.55	0.79	< 0.005	0.01	—	0.01	0.01	—	0.01	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	0.96	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	< 0.005	0.56	252
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	54.6	54.6	< 0.005	0.01	0.09	57.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.06	0.77	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	233	233	< 0.005	0.01	0.01	236
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	54.6	54.6	< 0.005	0.01	< 0.005	57.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.57	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	169	169	< 0.005	0.01	0.17	172

Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	39.0	39.0	< 0.005	0.01	0.03	40.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.0	28.0	< 0.005	< 0.005	0.03	28.4
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.46	6.46	< 0.005	< 0.005	< 0.005	6.75
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.189. Architectural Coating (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.77	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.77	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134

Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.55	0.79	< 0.005	0.01	—	0.01	0.01	—	0.01	—	95.6	95.6	< 0.005	< 0.005	—	95.9
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.9
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.90	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	248	248	< 0.005	< 0.005	0.49	249
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	52.8	52.8	< 0.005	0.01	0.08	55.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.05	0.73	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	230	230	< 0.005	0.01	0.01	233
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	52.8	52.8	< 0.005	0.01	< 0.005	55.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.54	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	167	167	< 0.005	< 0.005	0.15	168
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	37.8	37.8	< 0.005	0.01	0.02	39.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.7	27.7	< 0.005	< 0.005	0.03	27.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.26	6.26	< 0.005	< 0.005	< 0.005	6.53
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.190. Architectural Coating (2032) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.77	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.77	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.55	0.79	< 0.005	0.01	—	0.01	0.01	—	0.01	—	95.6	95.6	< 0.005	< 0.005	—	95.9
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.9
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.04	0.90	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	248	248	< 0.005	< 0.005	0.49	249
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	52.8	52.8	< 0.005	0.01	0.08	55.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.05	0.73	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	230	230	< 0.005	0.01	0.01	233
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	52.8	52.8	< 0.005	0.01	< 0.005	55.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.54	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	167	167	< 0.005	< 0.005	0.15	168
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	37.8	37.8	< 0.005	0.01	0.02	39.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.7	27.7	< 0.005	< 0.005	0.03	27.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.26	6.26	< 0.005	< 0.005	< 0.005	6.53
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.191. Architectural Coating (2033) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.55	0.79	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8

Architect Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.86	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	245	245	< 0.005	< 0.005	0.44	245
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	51.0	51.0	< 0.005	0.01	0.07	53.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.69	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.01	227
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	51.1	51.1	< 0.005	0.01	< 0.005	53.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.51	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	165	165	< 0.005	< 0.005	0.13	165
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	36.5	36.5	< 0.005	0.01	0.02	38.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.3	27.3	< 0.005	< 0.005	0.02	27.4
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.04	6.04	< 0.005	< 0.005	< 0.005	6.31
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.192. Architectural Coating (2033) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.55	0.79	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.86	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	245	245	< 0.005	< 0.005	0.44	245
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	51.0	51.0	< 0.005	0.01	0.07	53.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.69	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.01	227
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	51.1	51.1	< 0.005	0.01	< 0.005	53.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.51	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	165	165	< 0.005	< 0.005	0.13	165
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	36.5	36.5	< 0.005	0.01	0.02	38.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.3	27.3	< 0.005	< 0.005	0.02	27.4
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.04	6.04	< 0.005	< 0.005	< 0.005	6.31
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.193. Architectural Coating (2034) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.54	0.79	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7

Architect Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.81	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	242	242	< 0.005	< 0.005	0.38	242
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	49.4	49.4	< 0.005	0.01	0.06	51.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.01	225
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	49.4	49.4	< 0.005	0.01	< 0.005	51.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.48	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	163	163	< 0.005	< 0.005	0.12	163
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	35.3	35.3	< 0.005	0.01	0.02	36.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.9	26.9	< 0.005	< 0.005	0.02	27.0
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.84	5.84	< 0.005	< 0.005	< 0.005	6.09
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.194. Architectural Coating (2034) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.54	0.79	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.81	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	242	242	< 0.005	< 0.005	0.38	242
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	49.4	49.4	< 0.005	0.01	0.06	51.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.01	225
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	49.4	49.4	< 0.005	0.01	< 0.005	51.5

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.48	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	163	163	< 0.005	< 0.005	0.12	163
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	35.3	35.3	< 0.005	0.01	0.02	36.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.9	26.9	< 0.005	< 0.005	0.02	27.0
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.84	5.84	< 0.005	< 0.005	< 0.005	6.09
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.195. Architectural Coating (2035) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.54	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.77	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	239	239	< 0.005	< 0.005	0.33	240

Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	47.8	47.8	< 0.005	0.01	0.05	50.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.01	222
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	47.8	47.8	< 0.005	0.01	< 0.005	50.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.46	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	161	161	< 0.005	< 0.005	0.10	161
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.1	34.1	< 0.005	0.01	0.02	35.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.6	26.6	< 0.005	< 0.005	0.02	26.7
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.65	5.65	< 0.005	< 0.005	< 0.005	5.91
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.196. Architectural Coating (2035) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134

Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.54	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8

Architectural Coating	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.77	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	239	239	< 0.005	< 0.005	0.33	240
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	47.8	47.8	< 0.005	0.01	0.05	50.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.01	222
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	47.8	47.8	< 0.005	0.01	< 0.005	50.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.46	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	161	161	< 0.005	< 0.005	0.10	161
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.1	34.1	< 0.005	0.01	0.02	35.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.6	26.6	< 0.005	< 0.005	0.02	26.7
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.65	5.65	< 0.005	< 0.005	< 0.005	5.91
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.197. Architectural Coating (2036) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.10	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.10	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.54	0.79	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.6	95.6	< 0.005	< 0.005	—	96.0
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.9
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.73	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	236	236	< 0.005	< 0.005	0.28	237
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	46.3	46.3	< 0.005	0.01	0.04	48.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	219	219	< 0.005	< 0.005	0.01	220
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	46.4	46.4	< 0.005	0.01	< 0.005	48.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.44	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	160	160	< 0.005	< 0.005	0.09	160
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	33.2	33.2	< 0.005	0.01	0.01	34.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.4	26.4	< 0.005	< 0.005	0.01	26.5

Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.50	5.50	< 0.005	< 0.005	< 0.005	5.75
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.198. Architectural Coating (2036) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.10	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.10	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.08	0.06	0.54	0.79	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.6	95.6	< 0.005	< 0.005	—	96.0
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.9
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.73	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	236	236	< 0.005	< 0.005	0.28	237
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	46.3	46.3	< 0.005	0.01	0.04	48.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	219	219	< 0.005	< 0.005	0.01	220
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	46.4	46.4	< 0.005	0.01	< 0.005	48.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.44	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	160	160	< 0.005	< 0.005	0.09	160

Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	33.2	33.2	< 0.005	0.01	0.01	34.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.4	26.4	< 0.005	< 0.005	0.01	26.5
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.50	5.50	< 0.005	< 0.005	< 0.005	5.75
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.199. Architectural Coating (2037) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134

Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.71	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	234	234	< 0.005	< 0.005	0.24	235
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	45.1	45.1	< 0.005	0.01	0.03	47.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.56	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	217	217	< 0.005	< 0.005	0.01	218
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	45.1	45.1	< 0.005	0.01	< 0.005	47.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.42	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	158	158	< 0.005	< 0.005	0.08	158
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	32.2	32.2	< 0.005	< 0.005	0.01	33.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.1	26.1	< 0.005	< 0.005	0.01	26.2
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.33	5.33	< 0.005	< 0.005	< 0.005	5.57
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.200. Architectural Coating (2037) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.71	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	234	234	< 0.005	< 0.005	0.24	235
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	45.1	45.1	< 0.005	0.01	0.03	47.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.56	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	217	217	< 0.005	< 0.005	0.01	218
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	45.1	45.1	< 0.005	0.01	< 0.005	47.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.42	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	158	158	< 0.005	< 0.005	0.08	158
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	32.2	32.2	< 0.005	< 0.005	0.01	33.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.1	26.1	< 0.005	< 0.005	0.01	26.2
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.33	5.33	< 0.005	< 0.005	< 0.005	5.57
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.201. Architectural Coating (2038) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.11	0.09	0.75	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8

Architect Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.68	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	232	232	< 0.005	< 0.005	0.21	233
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	43.9	43.9	< 0.005	0.01	0.03	45.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.54	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	216	216	< 0.005	< 0.005	0.01	216
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	43.9	43.9	< 0.005	0.01	< 0.005	45.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.40	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	157	157	< 0.005	< 0.005	0.06	157
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	31.4	31.4	< 0.005	< 0.005	0.01	32.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.9	25.9	< 0.005	< 0.005	0.01	26.0
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.19	5.19	< 0.005	< 0.005	< 0.005	5.43
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.202. Architectural Coating (2038) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.68	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	232	232	< 0.005	< 0.005	0.21	233
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	43.9	43.9	< 0.005	0.01	0.03	45.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.54	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	216	216	< 0.005	< 0.005	0.01	216
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	43.9	43.9	< 0.005	0.01	< 0.005	45.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.40	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	157	157	< 0.005	< 0.005	0.06	157
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	31.4	31.4	< 0.005	< 0.005	0.01	32.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.9	25.9	< 0.005	< 0.005	0.01	26.0
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.19	5.19	< 0.005	< 0.005	< 0.005	5.43
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.203. Architectural Coating (2039) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7

Architect Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.66	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	231	231	< 0.005	< 0.005	0.18	231
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	42.9	42.9	< 0.005	0.01	0.02	44.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.52	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	214	214	< 0.005	< 0.005	< 0.005	214
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	42.9	42.9	< 0.005	0.01	< 0.005	44.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.39	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	156
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.6	30.6	< 0.005	< 0.005	0.01	32.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.07	5.07	< 0.005	< 0.005	< 0.005	5.31
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.204. Architectural Coating (2039) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.66	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	231	231	< 0.005	< 0.005	0.18	231
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	42.9	42.9	< 0.005	0.01	0.02	44.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.52	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	214	214	< 0.005	< 0.005	< 0.005	214
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	42.9	42.9	< 0.005	0.01	< 0.005	44.9

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.39	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	156
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.6	30.6	< 0.005	< 0.005	0.01	32.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.7	25.7	< 0.005	< 0.005	0.01	25.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.07	5.07	< 0.005	< 0.005	< 0.005	5.31
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.205. Architectural Coating (2040) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.6	95.6	< 0.005	< 0.005	—	96.0
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.9
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	229	229	< 0.005	< 0.005	0.15	230

Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	42.0	42.0	< 0.005	0.01	0.02	43.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	213	213	< 0.005	< 0.005	< 0.005	213
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	42.0	42.0	< 0.005	0.01	< 0.005	43.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.38	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	155
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.1	30.1	< 0.005	< 0.005	0.01	31.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.6	25.6	< 0.005	< 0.005	0.01	25.7
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.98	4.98	< 0.005	< 0.005	< 0.005	5.20
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.206. Architectural Coating (2040) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134

Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.6	95.6	< 0.005	< 0.005	—	96.0
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.9

Architectural Coating	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.64	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	229	229	< 0.005	< 0.005	0.15	230
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	42.0	42.0	< 0.005	0.01	0.02	43.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	213	213	< 0.005	< 0.005	< 0.005	213
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	42.0	42.0	< 0.005	0.01	< 0.005	43.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.38	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	155	155	< 0.005	< 0.005	0.05	155
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.1	30.1	< 0.005	< 0.005	0.01	31.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.6	25.6	< 0.005	< 0.005	0.01	25.7
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.98	4.98	< 0.005	< 0.005	< 0.005	5.20
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.207. Architectural Coating (2041) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.62	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	228	228	< 0.005	< 0.005	0.13	228
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	41.1	41.1	< 0.005	0.01	0.01	43.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.50	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	211	211	< 0.005	< 0.005	< 0.005	212
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	41.2	41.2	< 0.005	0.01	< 0.005	43.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.37	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	154	154	< 0.005	< 0.005	0.04	154
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.4	29.4	< 0.005	< 0.005	< 0.005	30.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.4	25.4	< 0.005	< 0.005	0.01	25.5

Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.87	4.87	< 0.005	< 0.005	< 0.005	5.09
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.208. Architectural Coating (2041) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.62	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	228	228	< 0.005	< 0.005	0.13	228
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	41.1	41.1	< 0.005	0.01	0.01	43.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.50	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	211	211	< 0.005	< 0.005	< 0.005	212
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	41.2	41.2	< 0.005	0.01	< 0.005	43.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.37	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	154	154	< 0.005	< 0.005	0.04	154

Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.4	29.4	< 0.005	< 0.005	< 0.005	30.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.4	25.4	< 0.005	< 0.005	0.01	25.5
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.87	4.87	< 0.005	< 0.005	< 0.005	5.09
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.209. Architectural Coating (2042) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134

Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.11	227
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	40.4	40.4	< 0.005	0.01	0.01	42.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.49	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	210	210	< 0.005	< 0.005	< 0.005	211
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	40.5	40.5	< 0.005	0.01	< 0.005	42.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.36	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	153	153	< 0.005	< 0.005	0.03	153
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	28.9	28.9	< 0.005	< 0.005	< 0.005	30.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.3	25.3	< 0.005	< 0.005	0.01	25.4
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.78	4.78	< 0.005	< 0.005	< 0.005	5.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.210. Architectural Coating (2042) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.61	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	227	227	< 0.005	< 0.005	0.11	227
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	40.4	40.4	< 0.005	0.01	0.01	42.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.49	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	210	210	< 0.005	< 0.005	< 0.005	211
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	40.5	40.5	< 0.005	0.01	< 0.005	42.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.36	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	153	153	< 0.005	< 0.005	0.03	153
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	28.9	28.9	< 0.005	< 0.005	< 0.005	30.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.07	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.3	25.3	< 0.005	< 0.005	0.01	25.4
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.78	4.78	< 0.005	< 0.005	< 0.005	5.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.211. Architectural Coating (2043) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8

Architect Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.60	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	226	226	< 0.005	< 0.005	0.09	226
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	39.8	39.8	< 0.005	0.01	0.01	41.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.48	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	210
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	39.8	39.8	< 0.005	0.01	< 0.005	41.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.03	152
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	28.4	28.4	< 0.005	< 0.005	< 0.005	29.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.71	4.71	< 0.005	< 0.005	< 0.005	4.93
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.212. Architectural Coating (2043) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.60	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	226	226	< 0.005	< 0.005	0.09	226
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	39.8	39.8	< 0.005	0.01	0.01	41.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.48	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	210
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	39.8	39.8	< 0.005	0.01	< 0.005	41.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.03	152
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	28.4	28.4	< 0.005	< 0.005	< 0.005	29.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.71	4.71	< 0.005	< 0.005	< 0.005	4.93
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.213. Architectural Coating (2044) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.6	95.6	< 0.005	< 0.005	—	96.0

Architect Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.9
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	225	225	< 0.005	< 0.005	0.08	225
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	39.2	39.2	< 0.005	0.01	0.01	40.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	209
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	39.3	39.3	< 0.005	0.01	< 0.005	41.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.02	152
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	28.1	28.1	< 0.005	< 0.005	< 0.005	29.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.65	4.65	< 0.005	< 0.005	< 0.005	4.86
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.214. Architectural Coating (2044) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.6	95.6	< 0.005	< 0.005	—	96.0
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.9
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	225	225	< 0.005	< 0.005	0.08	225
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	39.2	39.2	< 0.005	0.01	0.01	40.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	209	209	< 0.005	< 0.005	< 0.005	209
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	39.3	39.3	< 0.005	0.01	< 0.005	41.0

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.35	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	152	152	< 0.005	< 0.005	0.02	152
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	28.1	28.1	< 0.005	< 0.005	< 0.005	29.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	< 0.005	25.2
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.65	4.65	< 0.005	< 0.005	< 0.005	4.86
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.215. Architectural Coating (2045) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.07	225

Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.7	38.7	< 0.005	0.01	0.01	40.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	208	208	< 0.005	< 0.005	< 0.005	208
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.8	38.8	< 0.005	0.01	< 0.005	40.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.7	27.7	< 0.005	< 0.005	< 0.005	28.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.0	25.0	< 0.005	< 0.005	< 0.005	25.1
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.58	4.58	< 0.005	< 0.005	< 0.005	4.79
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.216. Architectural Coating (2045) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134

Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8

Architectural Coating	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.59	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.07	225
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.7	38.7	< 0.005	0.01	0.01	40.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.47	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	208	208	< 0.005	< 0.005	< 0.005	208
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.8	38.8	< 0.005	0.01	< 0.005	40.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.7	27.7	< 0.005	< 0.005	< 0.005	28.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.0	25.0	< 0.005	< 0.005	< 0.005	25.1
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.58	4.58	< 0.005	< 0.005	< 0.005	4.79
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.217. Architectural Coating (2046) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.06	224
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.3	38.3	< 0.005	0.01	< 0.005	40.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	208
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.4	38.4	< 0.005	0.01	< 0.005	40.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.4	27.4	< 0.005	< 0.005	< 0.005	28.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0

Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.53	4.53	< 0.005	< 0.005	< 0.005	4.74
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.218. Architectural Coating (2046) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	224	224	< 0.005	< 0.005	0.06	224
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.3	38.3	< 0.005	0.01	< 0.005	40.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	208
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.4	38.4	< 0.005	0.01	< 0.005	40.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	151	151	< 0.005	< 0.005	0.02	151

Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.4	27.4	< 0.005	< 0.005	< 0.005	28.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.53	4.53	< 0.005	< 0.005	< 0.005	4.74
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.219. Architectural Coating (2047) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134

Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.05	223
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.0	38.0	< 0.005	0.01	< 0.005	39.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.0	38.0	< 0.005	0.01	< 0.005	39.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	151
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.1	27.1	< 0.005	< 0.005	< 0.005	28.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	24.9
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.49	4.49	< 0.005	< 0.005	< 0.005	4.69
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.220. Architectural Coating (2047) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.58	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.05	223
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.0	38.0	< 0.005	0.01	< 0.005	39.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.46	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	38.0	38.0	< 0.005	0.01	< 0.005	39.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	151
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.1	27.1	< 0.005	< 0.005	< 0.005	28.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	24.9
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.49	4.49	< 0.005	< 0.005	< 0.005	4.69
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.221. Architectural Coating (2048) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.6	95.6	< 0.005	< 0.005	—	96.0
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.9

Architect Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.04	223
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.6	37.6	< 0.005	0.01	< 0.005	39.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.7	37.7	< 0.005	0.01	< 0.005	39.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	151
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.0	27.0	< 0.005	< 0.005	< 0.005	28.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.47	4.47	< 0.005	< 0.005	< 0.005	4.67
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.222. Architectural Coating (2048) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.6	95.6	< 0.005	< 0.005	—	96.0
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.9
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	223	223	< 0.005	< 0.005	0.04	223
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.6	37.6	< 0.005	0.01	< 0.005	39.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	207	207	< 0.005	< 0.005	< 0.005	207
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.7	37.7	< 0.005	0.01	< 0.005	39.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	151
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	27.0	27.0	< 0.005	< 0.005	< 0.005	28.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.9	24.9	< 0.005	< 0.005	< 0.005	25.0
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.47	4.47	< 0.005	< 0.005	< 0.005	4.67
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.223. Architectural Coating (2049) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7

Architect Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	223
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.4	37.4	< 0.005	0.01	< 0.005	39.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	207
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.4	37.4	< 0.005	0.01	< 0.005	39.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.7	26.7	< 0.005	< 0.005	< 0.005	27.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.42	4.42	< 0.005	< 0.005	< 0.005	4.63
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.224. Architectural Coating (2049) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	223
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.4	37.4	< 0.005	0.01	< 0.005	39.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	207
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.4	37.4	< 0.005	0.01	< 0.005	39.2

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.7	26.7	< 0.005	< 0.005	< 0.005	27.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.42	4.42	< 0.005	< 0.005	< 0.005	4.63
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.225. Architectural Coating (2050) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	222

Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.2	37.2	< 0.005	0.01	< 0.005	38.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	206
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.2	37.2	< 0.005	0.01	< 0.005	38.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.6	26.6	< 0.005	< 0.005	< 0.005	27.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.40	4.40	< 0.005	< 0.005	< 0.005	4.60
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.226. Architectural Coating (2050) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134

Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8

Architectural Coating	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.57	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	222	222	< 0.005	< 0.005	0.03	222
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.2	37.2	< 0.005	0.01	< 0.005	38.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.45	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	206	206	< 0.005	< 0.005	< 0.005	206
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	37.2	37.2	< 0.005	0.01	< 0.005	38.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.34	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	150	150	< 0.005	< 0.005	0.01	150
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.6	26.6	< 0.005	< 0.005	< 0.005	27.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.8	24.8	< 0.005	< 0.005	< 0.005	24.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.40	4.40	< 0.005	< 0.005	< 0.005	4.60
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.227. Architectural Coating (2051) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.228. Architectural Coating (2051) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coating	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.229. Architectural Coating (2052) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architect Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.230. Architectural Coating (2052) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.231. Architectural Coating (2053) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coating	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.232. Architectural Coating (2053) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.233. Architectural Coating (2054) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coating	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.234. Architectural Coating (2054) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architect Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.235. Architectural Coating (2055) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.236. Architectural Coating (2055) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coating	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.237. Architectural Coating (2056) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.238. Architectural Coating (2056) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coating	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.239. Architectural Coating (2057) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architect Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.16	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

3.240. Architectural Coating (2057) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	0.16	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.25	0.25	—	0.06	0.06	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.16	0.16	—	0.04	0.04	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Vendor	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Hauling	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.1.2. Mitigated

Mobile source emissions results are presented in Sections 2.5. No further detailed breakdown of emissions is available.

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	758	758	0.06	0.01	—	761
Total	—	—	—	—	—	—	—	—	—	—	—	—	758	758	0.06	0.01	—	761
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	758	758	0.06	0.01	—	761
Total	—	—	—	—	—	—	—	—	—	—	—	—	758	758	0.06	0.01	—	761

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	125	125	0.01	< 0.005	—	126
Total	—	—	—	—	—	—	—	—	—	—	—	—	125	125	0.01	< 0.005	—	126

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	758	758	0.06	0.01	—	761
Total	—	—	—	—	—	—	—	—	—	—	—	—	758	758	0.06	0.01	—	761
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	758	758	0.06	0.01	—	761
Total	—	—	—	—	—	—	—	—	—	—	—	—	758	758	0.06	0.01	—	761
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	125	125	0.01	< 0.005	—	126
Total	—	—	—	—	—	—	—	—	—	—	—	—	125	125	0.01	< 0.005	—	126

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	0.07	0.03	0.60	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	713	713	0.06	< 0.005	—	715
Total	0.07	0.03	0.60	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	713	713	0.06	< 0.005	—	715
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	0.07	0.03	0.60	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	713	713	0.06	< 0.005	—	715
Total	0.07	0.03	0.60	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	713	713	0.06	< 0.005	—	715
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	118	118	0.01	< 0.005	—	118
Total	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	118	118	0.01	< 0.005	—	118

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	0.07	0.03	0.60	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	713	713	0.06	< 0.005	—	715
Total	0.07	0.03	0.60	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	713	713	0.06	< 0.005	—	715
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	0.07	0.03	0.60	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	713	713	0.06	< 0.005	—	715
Total	0.07	0.03	0.60	0.50	< 0.005	0.05	—	0.05	0.05	—	0.05	—	713	713	0.06	< 0.005	—	715
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Health Club	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	118	118	0.01	< 0.005	—	118
Total	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	118	118	0.01	< 0.005	—	118

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consumer Products	3.09	3.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.20	0.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	4.02	3.74	1.48	207	0.01	0.01	—	0.01	0.01	—	0.01	—	439	439	0.02	< 0.005	—	441
Total	7.31	7.03	1.48	207	0.01	0.01	—	0.01	0.01	—	0.01	—	439	439	0.02	< 0.005	—	441
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.09	3.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.20	0.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	4.02	3.74	1.48	207	0.01	0.01	—	0.01	0.01	—	0.01	—	439	439	0.02	< 0.005	—	441
Total	7.31	7.03	1.48	207	0.01	0.01	—	0.01	0.01	—	0.01	—	439	439	0.02	< 0.005	—	441
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.56	0.56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.04	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landsca Equipment	0.73	0.68	0.27	37.7	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	72.7	72.7	< 0.005	< 0.005	—	73.0
Total	1.33	1.28	0.27	37.7	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	72.7	72.7	< 0.005	< 0.005	—	73.0

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.09	3.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.20	0.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	4.02	3.74	1.48	207	0.01	0.01	—	0.01	0.01	—	0.01	—	439	439	0.02	< 0.005	—	441
Total	7.31	7.03	1.48	207	0.01	0.01	—	0.01	0.01	—	0.01	—	439	439	0.02	< 0.005	—	441
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.09	3.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.20	0.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landsca pe Equipm	4.02	3.74	1.48	207	0.01	0.01	—	0.01	0.01	—	0.01	—	439	439	0.02	< 0.005	—	441
Total	7.31	7.03	1.48	207	0.01	0.01	—	0.01	0.01	—	0.01	—	439	439	0.02	< 0.005	—	441
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.56	0.56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.04	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.73	0.68	0.27	37.7	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	72.7	72.7	< 0.005	< 0.005	—	73.0
Total	1.33	1.28	0.27	37.7	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	72.7	72.7	< 0.005	< 0.005	—	73.0

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	0.00	385	385	0.03	< 0.005	—	387
Health Club	—	—	—	—	—	—	—	—	—	—	—	7.14	21.7	28.9	0.73	0.02	—	52.4
Total	—	—	—	—	—	—	—	—	—	—	—	7.14	407	414	0.76	0.02	—	439

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	0.00	385	385	0.03	< 0.005	—	387
Health Club	—	—	—	—	—	—	—	—	—	—	—	7.14	21.7	28.9	0.73	0.02	—	52.4
Total	—	—	—	—	—	—	—	—	—	—	—	7.14	407	414	0.76	0.02	—	439
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	0.00	63.7	63.7	< 0.005	< 0.005	—	64.0
Health Club	—	—	—	—	—	—	—	—	—	—	—	1.18	3.60	4.78	0.12	< 0.005	—	8.68
Total	—	—	—	—	—	—	—	—	—	—	—	1.18	67.3	68.5	0.13	< 0.005	—	72.7

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	0.00	385	385	0.03	< 0.005	—	387
Health Club	—	—	—	—	—	—	—	—	—	—	—	7.14	21.7	28.9	0.73	0.02	—	52.4
Total	—	—	—	—	—	—	—	—	—	—	—	7.14	407	414	0.76	0.02	—	439
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	0.00	385	385	0.03	< 0.005	—	387
Health Club	—	—	—	—	—	—	—	—	—	—	—	7.14	21.7	28.9	0.73	0.02	—	52.4

Total	—	—	—	—	—	—	—	—	—	—	—	7.14	407	414	0.76	0.02	—	439
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	0.00	63.7	63.7	< 0.005	< 0.005	—	64.0
Health Club	—	—	—	—	—	—	—	—	—	—	—	1.18	3.60	4.78	0.12	< 0.005	—	8.68
Total	—	—	—	—	—	—	—	—	—	—	—	1.18	67.3	68.5	0.13	< 0.005	—	72.7

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	1.29	0.00	1.29	0.13	0.00	—	4.52
Health Club	—	—	—	—	—	—	—	—	—	—	—	194	0.00	194	19.3	0.00	—	677
Total	—	—	—	—	—	—	—	—	—	—	—	195	0.00	195	19.5	0.00	—	682
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	1.29	0.00	1.29	0.13	0.00	—	4.52
Health Club	—	—	—	—	—	—	—	—	—	—	—	194	0.00	194	19.3	0.00	—	677
Total	—	—	—	—	—	—	—	—	—	—	—	195	0.00	195	19.5	0.00	—	682
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	0.21	0.00	0.21	0.02	0.00	—	0.75

Health Club	—	—	—	—	—	—	—	—	—	—	—	32.0	0.00	32.0	3.20	0.00	—	112
Total	—	—	—	—	—	—	—	—	—	—	—	32.3	0.00	32.3	3.22	0.00	—	113

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	1.29	0.00	1.29	0.13	0.00	—	4.52
Health Club	—	—	—	—	—	—	—	—	—	—	—	194	0.00	194	19.3	0.00	—	677
Total	—	—	—	—	—	—	—	—	—	—	—	195	0.00	195	19.5	0.00	—	682
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	1.29	0.00	1.29	0.13	0.00	—	4.52
Health Club	—	—	—	—	—	—	—	—	—	—	—	194	0.00	194	19.3	0.00	—	677
Total	—	—	—	—	—	—	—	—	—	—	—	195	0.00	195	19.5	0.00	—	682
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	0.21	0.00	0.21	0.02	0.00	—	0.75
Health Club	—	—	—	—	—	—	—	—	—	—	—	32.0	0.00	32.0	3.20	0.00	—	112
Total	—	—	—	—	—	—	—	—	—	—	—	32.3	0.00	32.3	3.22	0.00	—	113

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.30	0.30
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.30	0.30
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.30	0.30
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.30	0.30
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.30	0.30
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.30	0.30
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.30	0.30
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.30	0.30
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Golf Course	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	1/3/2028	12/21/2057	5.00	7,820	—
Grading	Grading	1/3/2028	12/21/2057	5.00	7,820	—
Building Construction	Building Construction	1/3/2028	12/21/2057	5.00	7,820	—
Architectural Coating	Architectural Coating	1/3/2028	12/21/2057	5.00	7,820	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40

Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	20.0	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	10.0	20.0	HHDT
Site Preparation	Onsite truck	1.00	1.00	HHDT

Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	10.0	20.0	HHDT
Grading	Onsite truck	1.00	1.00	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	20.0	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	2.00	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	20.0	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	2.00	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	20.0	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	10.0	20.0	HHDT
Site Preparation	Onsite truck	1.00	1.00	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	10.0	20.0	HHDT
Grading	Onsite truck	1.00	1.00	HHDT

Building Construction	—	—	—	—
Building Construction	Worker	20.0	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	2.00	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	20.0	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	2.00	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	117,000	39,000	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)

Site Preparation	—	—	11,730	0.00	—
Grading	—	—	7,820	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Golf Course	0.00	0%
Health Club	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2038	0.00	453	0.03	< 0.005
2039	0.00	453	0.03	< 0.005
2040	0.00	453	0.03	< 0.005
2041	0.00	453	0.03	< 0.005
2042	0.00	453	0.03	< 0.005
2043	0.00	453	0.03	< 0.005
2044	0.00	453	0.03	< 0.005
2045	0.00	453	0.03	< 0.005
2046	0.00	453	0.03	< 0.005
2047	0.00	453	0.03	< 0.005
2048	0.00	453	0.03	< 0.005
2049	0.00	453	0.03	< 0.005
2050	0.00	453	0.03	< 0.005
2051	0.00	453	0.03	< 0.005

2052	0.00	453	0.03	< 0.005	
2053	0.00	453	0.03	< 0.005	
2054	0.00	453	0.03	< 0.005	
2055	0.00	453	0.03	< 0.005	
2056	0.00	453	0.03	< 0.005	
2057	0.00	453	0.03	< 0.005	
2028	0.00	453	0.03	< 0.005	
2029	0.00	453	0.03	< 0.005	
2030	0.00	453	0.03	< 0.005	
2031	0.00	453	0.03	< 0.005	
2032	0.00	453	0.03	< 0.005	
2033	0.00	453	0.03	< 0.005	
2034	0.00	453	0.03	< 0.005	
2035	0.00	453	0.03	< 0.005	
2036	0.00	453	0.03	< 0.005	
2037	0.00	453	0.03	< 0.005	

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	117,000	39,000	—

5.10.3. Landscape Equipment

Equipment Type	Fuel Type	Number Per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Riding Mowers	Gasoline 4-Stroke	2.00	16.0	5,840	21.4	0.38
Other Lawn & Garden Equipment	Gasoline 4-Stroke	1.00	16.0	5,840	6.09	0.58

5.10.4. Landscape Equipment - Mitigated

Equipment Type	Fuel Type	Number Per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Riding Mowers	Gasoline 4-Stroke	2.00	16.0	5,840	21.4	0.38
Other Lawn & Garden Equipment	Gasoline 4-Stroke	1.00	16.0	5,840	6.09	0.58

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)

Golf Course	0.00	453	0.0330	0.0040	0.00
Health Club	610,233	453	0.0330	0.0040	2,226,199

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Golf Course	0.00	453	0.0330	0.0040	0.00
Health Club	610,233	453	0.0330	0.0040	2,226,199

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Golf Course	0.00	72,107,980
Health Club	3,726,018	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Golf Course	0.00	72,107,980
Health Club	3,726,018	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Golf Course	2.40	—
Health Club	359	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Golf Course	2.40	—
Health Club	359	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Golf Course	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Golf Course	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Health Club	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Health Club	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Golf Course	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Golf Course	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Health Club	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Health Club	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	5.68	annual days of extreme heat
Extreme Precipitation	5.50	annual days with precipitation above 20 mm

Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A

Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	45.0
AQ-PM	66.1
AQ-DPM	96.2
Drinking Water	52.7
Lead Risk Housing	24.4
Pesticides	0.00
Toxic Releases	79.2
Traffic	68.7
Effect Indicators	—

CleanUp Sites	0.00
Groundwater	25.1
Haz Waste Facilities/Generators	44.7
Impaired Water Bodies	66.7
Solid Waste	42.3
Sensitive Population	—
Asthma	35.8
Cardio-vascular	47.2
Low Birth Weights	7.17
Socioeconomic Factor Indicators	—
Education	20.9
Housing	50.7
Linguistic	30.0
Poverty	42.6
Unemployment	45.8

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	66.05928397
Employed	97.78005903
Median HI	50.49403311
Education	—
Bachelor's or higher	85.98742461
High school enrollment	100
Preschool enrollment	78.71166431
Transportation	—

Auto Access	15.29577826
Active commuting	83.42101886
Social	—
2-parent households	0.936738098
Voting	40.18991403
Neighborhood	—
Alcohol availability	4.516874118
Park access	81.35506224
Retail density	58.14192224
Supermarket access	94.25125112
Tree canopy	21.14718337
Housing	—
Homeownership	0.590273322
Housing habitability	26.43397921
Low-inc homeowner severe housing cost burden	99.12742205
Low-inc renter severe housing cost burden	68.71551392
Uncrowded housing	10.40677531
Health Outcomes	—
Insured adults	54.27948159
Arthritis	98.1
Asthma ER Admissions	59.4
High Blood Pressure	96.7
Cancer (excluding skin)	89.7
Asthma	83.3
Coronary Heart Disease	97.4
Chronic Obstructive Pulmonary Disease	97.2
Diagnosed Diabetes	95.7
Life Expectancy at Birth	81.8

Cognitively Disabled	93.6
Physically Disabled	98.1
Heart Attack ER Admissions	34.3
Mental Health Not Good	76.1
Chronic Kidney Disease	95.6
Obesity	77.3
Pedestrian Injuries	94.6
Physical Health Not Good	92.3
Stroke	96.9
Health Risk Behaviors	—
Binge Drinking	6.6
Current Smoker	70.9
No Leisure Time for Physical Activity	88.3
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	19.0
Elderly	98.6
English Speaking	73.8
Foreign-born	76.3
Outdoor Workers	35.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	0.9
Traffic Density	60.1
Traffic Access	87.4
Other Indices	—
Hardship	35.5
Other Decision Support	—

2016 Voting	48.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	39.0
Healthy Places Index Score for Project Location (b)	60.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Characteristics: Project Details	adjusted project details to match project location
Characteristics: Utility Information	using statewide average electricity factors
Construction: Construction Phases	updated construction schedule to match project needs
Construction: Off-Road Equipment	adjusted construction equipment mix to match project needs
Construction: Trips and VMT	updated trips and vmt to match anticipated project needs
Operations: Water and Waste Water	Adjusted electric intensity factor for Maui

Makena Mauka - Operations Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Makena Mauka - Operations
Operational Year	2050
Lead Agency	—
Land Use Scale	Plan/community
Analysis Level for Defaults	Statewide
Windspeed (m/s)	15.0
Precipitation (days)	113
Location	34.022579521235755, -118.40535118073069
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4454
EDFZ	16
Electric Utility	Statewide Average
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Mid Rise	94.0	Dwelling Unit	2.47	90,240	0.00	—	278	affordable housing

Single Family Housing	15.0	Dwelling Unit	4.87	29,250	175,693	—	44.0	affordable housing
Apartments Mid Rise	363	Dwelling Unit	9.55	348,480	0.00	—	1,074	multi-family housing
Strip Mall	3.00	1000sqft	0.07	3,000	0.00	—	—	retail spaces
Office Park	46.0	1000sqft	1.06	46,000	0.00	—	—	offices
Single Family Housing	180	Dwelling Unit	58.4	351,000	2,108,314	—	533	single family housing
High Turnover (Sit Down Restaurant)	48.0	1000sqft	1.10	48,000	0.00	—	—	Restaurant, Clubhouse, Kitchen, Locker Rooms, Fitness, Back of House

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Energy	E-12-A	Install Alternative Type of Water Heater in Place of Gas Storage Tank Heater in Residences
Energy	E-12-B	Install Electric Space Heater in Place of Natural Gas Heaters in Residences
Energy	E-13	Install Electric Ranges in Place of Gas Ranges

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	33.8	32.7	10.9	107	0.22	0.52	20.1	20.6	0.51	5.09	5.60	712	32,702	33,414	73.2	1.10	83.3	35,655
Mit.	33.8	32.7	10.9	107	0.22	0.52	20.1	20.6	0.51	5.09	5.60	712	32,688	33,401	73.2	1.10	83.3	35,641

% Reduced	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	< 0.5%	—	< 0.5%	< 0.5%	—	< 0.5%	—	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	29.5	28.7	11.1	58.6	0.20	0.49	20.1	20.5	0.49	5.09	5.58	712	31,505	32,217	73.2	1.14	81.1	34,469
Mit.	29.5	28.7	11.1	58.6	0.20	0.49	20.1	20.5	0.49	5.09	5.57	712	31,491	32,204	73.2	1.14	81.1	34,456
% Reduced	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	< 0.5%	—	< 0.5%	< 0.5%	—	< 0.5%	—	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	31.5	30.5	11.1	79.7	0.21	0.50	18.6	19.1	0.50	4.72	5.22	712	31,790	32,503	73.2	1.13	82.0	34,752
Mit.	31.5	30.5	11.1	79.7	0.21	0.50	18.6	19.1	0.49	4.72	5.22	712	31,777	32,489	73.2	1.13	82.0	34,738
% Reduced	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	< 0.5%	—	< 0.5%	< 0.5%	—	< 0.5%	—	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.75	5.57	2.02	14.5	0.04	0.09	3.39	3.49	0.09	0.86	0.95	118	5,263	5,381	12.1	0.19	13.6	5,754
Mit.	5.75	5.57	2.02	14.5	0.04	0.09	3.39	3.49	0.09	0.86	0.95	118	5,261	5,379	12.1	0.19	13.6	5,751
% Reduced	< 0.5%	< 0.5%	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	< 0.5%	< 0.5%	—	< 0.5%	—	< 0.5%	< 0.5%	< 0.5%	> -0.5%	—	< 0.5%
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	40.0	40.0	100	40.0	—	—	15.0	—	—	10.0	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—
Mit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.84	7.29	5.31	62.5	0.18	0.08	20.1	20.1	0.07	5.09	5.16	—	18,527	18,527	0.55	0.73	2.32	18,762
Area	25.4	25.2	0.38	41.4	< 0.005	0.02	—	0.02	0.02	—	0.02	0.00	116	116	< 0.005	< 0.005	—	117
Energy	0.60	0.30	5.24	2.84	0.03	0.42	—	0.42	0.42	—	0.42	—	12,898	12,898	1.04	0.07	—	12,944
Water	—	—	—	—	—	—	—	—	—	—	—	117	1,161	1,278	12.1	0.29	—	1,667
Waste	—	—	—	—	—	—	—	—	—	—	—	596	0.00	596	59.5	0.00	—	2,084
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	81.0	81.0
Total	33.8	32.7	10.9	107	0.22	0.52	20.1	20.6	0.51	5.09	5.60	712	32,702	33,414	73.2	1.10	83.3	35,655
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.65	7.10	5.83	55.8	0.17	0.08	20.1	20.1	0.07	5.09	5.16	—	17,446	17,446	0.59	0.78	0.06	17,693
Area	21.3	21.3	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	0.60	0.30	5.24	2.84	0.03	0.42	—	0.42	0.42	—	0.42	—	12,898	12,898	1.04	0.07	—	12,944
Water	—	—	—	—	—	—	—	—	—	—	—	117	1,161	1,278	12.1	0.29	—	1,667
Waste	—	—	—	—	—	—	—	—	—	—	—	596	0.00	596	59.5	0.00	—	2,084
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	81.0	81.0
Total	29.5	28.7	11.1	58.6	0.20	0.49	20.1	20.5	0.49	5.09	5.58	712	31,505	32,217	73.2	1.14	81.1	34,469
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.60	7.05	5.66	56.4	0.17	0.08	18.6	18.7	0.07	4.72	4.80	—	17,674	17,674	0.57	0.77	1.00	17,918
Area	23.3	23.2	0.19	20.4	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	57.3	57.3	< 0.005	< 0.005	—	57.5
Energy	0.60	0.30	5.24	2.84	0.03	0.42	—	0.42	0.42	—	0.42	—	12,898	12,898	1.04	0.07	—	12,944
Water	—	—	—	—	—	—	—	—	—	—	—	117	1,161	1,278	12.1	0.29	—	1,667
Waste	—	—	—	—	—	—	—	—	—	—	—	596	0.00	596	59.5	0.00	—	2,084
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	81.0	81.0
Total	31.5	30.5	11.1	79.7	0.21	0.50	18.6	19.1	0.50	4.72	5.22	712	31,790	32,503	73.2	1.13	82.0	34,752
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	1.39	1.29	1.03	10.3	0.03	0.01	3.39	3.41	0.01	0.86	0.88	—	2,926	2,926	0.10	0.13	0.17	2,966
Area	4.25	4.23	0.03	3.73	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	9.49	9.49	< 0.005	< 0.005	—	9.52
Energy	0.11	0.06	0.96	0.52	0.01	0.08	—	0.08	0.08	—	0.08	—	2,135	2,135	0.17	0.01	—	2,143
Water	—	—	—	—	—	—	—	—	—	—	—	19.3	192	212	2.00	0.05	—	276
Waste	—	—	—	—	—	—	—	—	—	—	—	98.6	0.00	98.6	9.86	0.00	—	345
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.4	13.4
Total	5.75	5.57	2.02	14.5	0.04	0.09	3.39	3.49	0.09	0.86	0.95	118	5,263	5,381	12.1	0.19	13.6	5,754

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.84	7.29	5.31	62.5	0.18	0.08	20.1	20.1	0.07	5.09	5.16	—	18,527	18,527	0.55	0.73	2.32	18,762
Area	25.4	25.2	0.38	41.4	< 0.005	0.02	—	0.02	0.02	—	0.02	0.00	116	116	< 0.005	< 0.005	—	117
Energy	0.60	0.30	5.22	2.83	0.03	0.42	—	0.42	0.42	—	0.42	—	12,884	12,884	1.04	0.07	—	12,931
Water	—	—	—	—	—	—	—	—	—	—	—	117	1,161	1,278	12.1	0.29	—	1,667
Waste	—	—	—	—	—	—	—	—	—	—	—	596	0.00	596	59.5	0.00	—	2,084
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	81.0	81.0
Total	33.8	32.7	10.9	107	0.22	0.52	20.1	20.6	0.51	5.09	5.60	712	32,688	33,401	73.2	1.10	83.3	35,641
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.65	7.10	5.83	55.8	0.17	0.08	20.1	20.1	0.07	5.09	5.16	—	17,446	17,446	0.59	0.78	0.06	17,693
Area	21.3	21.3	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	0.60	0.30	5.22	2.83	0.03	0.42	—	0.42	0.42	—	0.42	—	12,884	12,884	1.04	0.07	—	12,931
Water	—	—	—	—	—	—	—	—	—	—	—	117	1,161	1,278	12.1	0.29	—	1,667
Waste	—	—	—	—	—	—	—	—	—	—	—	596	0.00	596	59.5	0.00	—	2,084

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	81.0	81.0
Total	29.5	28.7	11.1	58.6	0.20	0.49	20.1	20.5	0.49	5.09	5.57	712	31,491	32,204	73.2	1.14	81.1	34,456
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	7.60	7.05	5.66	56.4	0.17	0.08	18.6	18.7	0.07	4.72	4.80	—	17,674	17,674	0.57	0.77	1.00	17,918
Area	23.3	23.2	0.19	20.4	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	57.3	57.3	< 0.005	< 0.005	—	57.5
Energy	0.60	0.30	5.22	2.83	0.03	0.42	—	0.42	0.42	—	0.42	—	12,884	12,884	1.04	0.07	—	12,931
Water	—	—	—	—	—	—	—	—	—	—	—	117	1,161	1,278	12.1	0.29	—	1,667
Waste	—	—	—	—	—	—	—	—	—	—	—	596	0.00	596	59.5	0.00	—	2,084
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	81.0	81.0
Total	31.5	30.5	11.1	79.7	0.21	0.50	18.6	19.1	0.49	4.72	5.22	712	31,777	32,489	73.2	1.13	82.0	34,738
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.39	1.29	1.03	10.3	0.03	0.01	3.39	3.41	0.01	0.86	0.88	—	2,926	2,926	0.10	0.13	0.17	2,966
Area	4.25	4.23	0.03	3.73	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	9.49	9.49	< 0.005	< 0.005	—	9.52
Energy	0.11	0.05	0.95	0.52	0.01	0.08	—	0.08	0.08	—	0.08	—	2,133	2,133	0.17	0.01	—	2,141
Water	—	—	—	—	—	—	—	—	—	—	—	19.3	192	212	2.00	0.05	—	276
Waste	—	—	—	—	—	—	—	—	—	—	—	98.6	0.00	98.6	9.86	0.00	—	345
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.4	13.4
Total	5.75	5.57	2.02	14.5	0.04	0.09	3.39	3.49	0.09	0.86	0.95	118	5,261	5,379	12.1	0.19	13.6	5,751

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	5.27	4.89	3.57	42.1	0.12	0.05	13.5	13.6	0.05	3.43	3.48	—	12,474	12,474	0.37	0.49	1.56	12,632
Single Family Housing	1.47	1.37	1.00	11.8	0.03	0.01	3.77	3.79	0.01	0.96	0.97	—	3,485	3,485	0.10	0.14	0.44	3,529
Strip Mall	0.42	0.39	0.29	3.35	0.01	< 0.005	1.07	1.07	< 0.005	0.27	0.28	—	988	988	0.03	0.04	0.12	1,000
Office Park	0.68	0.63	0.46	5.35	0.02	0.01	1.71	1.72	0.01	0.43	0.44	—	1,581	1,581	0.05	0.06	0.20	1,601
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	7.84	7.29	5.31	62.5	0.18	0.08	20.1	20.1	0.07	5.09	5.16	—	18,527	18,527	0.55	0.73	2.32	18,762
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	5.14	4.77	3.92	37.5	0.12	0.05	13.5	13.6	0.05	3.43	3.47	—	11,746	11,746	0.40	0.52	0.04	11,912
Single Family Housing	1.44	1.33	1.10	10.5	0.03	0.01	3.77	3.79	0.01	0.96	0.97	—	3,281	3,281	0.11	0.15	0.01	3,328
Strip Mall	0.41	0.38	0.31	2.99	0.01	< 0.005	1.07	1.07	< 0.005	0.27	0.27	—	930	930	0.03	0.04	< 0.005	944
Office Park	0.66	0.61	0.50	4.78	0.01	0.01	1.71	1.72	0.01	0.43	0.44	—	1,489	1,489	0.05	0.07	0.01	1,510
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Total	7.65	7.10	5.83	55.8	0.17	0.08	20.1	20.1	0.07	5.09	5.16	—	17,446	17,446	0.59	0.78	0.06	17,693
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.93	0.86	0.69	6.93	0.02	0.01	2.29	2.30	0.01	0.58	0.59	—	1,970	1,970	0.06	0.09	0.11	1,997
Single Family Housing	0.26	0.24	0.19	1.94	0.01	< 0.005	0.64	0.64	< 0.005	0.16	0.16	—	550	550	0.02	0.02	0.03	558
Strip Mall	0.07	0.07	0.06	0.55	< 0.005	< 0.005	0.18	0.18	< 0.005	0.05	0.05	—	156	156	0.01	0.01	0.01	158
Office Park	0.12	0.11	0.09	0.88	< 0.005	< 0.005	0.29	0.29	< 0.005	0.07	0.07	—	250	250	0.01	0.01	0.01	253
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.39	1.29	1.03	10.3	0.03	0.01	3.39	3.41	0.01	0.86	0.88	—	2,926	2,926	0.10	0.13	0.17	2,966

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	5.27	4.89	3.57	42.1	0.12	0.05	13.5	13.6	0.05	3.43	3.48	—	12,474	12,474	0.37	0.49	1.56	12,632
Single Family Housing	1.47	1.37	1.00	11.8	0.03	0.01	3.77	3.79	0.01	0.96	0.97	—	3,485	3,485	0.10	0.14	0.44	3,529
Strip Mall	0.42	0.39	0.29	3.35	0.01	< 0.005	1.07	1.07	< 0.005	0.27	0.28	—	988	988	0.03	0.04	0.12	1,000

Office Park	0.68	0.63	0.46	5.35	0.02	0.01	1.71	1.72	0.01	0.43	0.44	—	1,581	1,581	0.05	0.06	0.20	1,601
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	7.84	7.29	5.31	62.5	0.18	0.08	20.1	20.1	0.07	5.09	5.16	—	18,527	18,527	0.55	0.73	2.32	18,762
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	5.14	4.77	3.92	37.5	0.12	0.05	13.5	13.6	0.05	3.43	3.47	—	11,746	11,746	0.40	0.52	0.04	11,912
Single Family Housing	1.44	1.33	1.10	10.5	0.03	0.01	3.77	3.79	0.01	0.96	0.97	—	3,281	3,281	0.11	0.15	0.01	3,328
Strip Mall	0.41	0.38	0.31	2.99	0.01	< 0.005	1.07	1.07	< 0.005	0.27	0.27	—	930	930	0.03	0.04	< 0.005	944
Office Park	0.66	0.61	0.50	4.78	0.01	0.01	1.71	1.72	0.01	0.43	0.44	—	1,489	1,489	0.05	0.07	0.01	1,510
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	7.65	7.10	5.83	55.8	0.17	0.08	20.1	20.1	0.07	5.09	5.16	—	17,446	17,446	0.59	0.78	0.06	17,693
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.93	0.86	0.69	6.93	0.02	0.01	2.29	2.30	0.01	0.58	0.59	—	1,970	1,970	0.06	0.09	0.11	1,997
Single Family Housing	0.26	0.24	0.19	1.94	0.01	< 0.005	0.64	0.64	< 0.005	0.16	0.16	—	550	550	0.02	0.02	0.03	558
Strip Mall	0.07	0.07	0.06	0.55	< 0.005	< 0.005	0.18	0.18	< 0.005	0.05	0.05	—	156	156	0.01	0.01	0.01	158

Office Park	0.12	0.11	0.09	0.88	< 0.005	< 0.005	0.29	0.29	< 0.005	0.07	0.07	—	250	250	0.01	0.01	0.01	253
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.39	1.29	1.03	10.3	0.03	0.01	3.39	3.41	0.01	0.86	0.88	—	2,926	2,926	0.10	0.13	0.17	2,966

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	1,863	1,863	0.14	0.02	—	1,871
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,606	1,606	0.12	0.01	—	1,613
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	37.1	37.1	< 0.005	< 0.005	—	37.3
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	910	910	0.07	0.01	—	914
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	1,941	1,941	0.14	0.02	—	1,950
Total	—	—	—	—	—	—	—	—	—	—	—	—	6,357	6,357	0.46	0.06	—	6,386

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	1,863	1,863	0.14	0.02	—	1,871
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,606	1,606	0.12	0.01	—	1,613
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	37.1	37.1	< 0.005	< 0.005	—	37.3
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	910	910	0.07	0.01	—	914
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	1,941	1,941	0.14	0.02	—	1,950
Total	—	—	—	—	—	—	—	—	—	—	—	—	6,357	6,357	0.46	0.06	—	6,386
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	308	308	0.02	< 0.005	—	310
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	266	266	0.02	< 0.005	—	267
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	6.14	6.14	< 0.005	< 0.005	—	6.17
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	151	151	0.01	< 0.005	—	151
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	321	321	0.02	< 0.005	—	323
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,053	1,053	0.08	0.01	—	1,057

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	1,867	1,867	0.14	0.02	—	1,875
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,611	1,611	0.12	0.01	—	1,618
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	37.1	37.1	< 0.005	< 0.005	—	37.3
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	910	910	0.07	0.01	—	914
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	1,941	1,941	0.14	0.02	—	1,950
Total	—	—	—	—	—	—	—	—	—	—	—	—	6,366	6,366	0.46	0.06	—	6,394
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	1,867	1,867	0.14	0.02	—	1,875
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,611	1,611	0.12	0.01	—	1,618
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	37.1	37.1	< 0.005	< 0.005	—	37.3
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	910	910	0.07	0.01	—	914

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	1,941	1,941	0.14	0.02	—	1,950
Total	—	—	—	—	—	—	—	—	—	—	—	—	6,366	6,366	0.46	0.06	—	6,394
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	309	309	0.02	< 0.005	—	310
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	267	267	0.02	< 0.005	—	268
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	6.14	6.14	< 0.005	< 0.005	—	6.17
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	151	151	0.01	< 0.005	—	151
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	321	321	0.02	< 0.005	—	323
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,054	1,054	0.08	0.01	—	1,059

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.13	0.07	1.15	0.49	0.01	0.09	—	0.09	0.09	—	0.09	—	1,454	1,454	0.13	< 0.005	—	1,458

Single Family Housing	0.31	0.15	2.62	1.12	0.02	0.21	—	0.21	0.21	—	0.21	—	3,328	3,328	0.29	0.01	—	3,338
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.73	4.73	< 0.005	< 0.005	—	4.75
Office Park	0.03	0.01	0.25	0.21	< 0.005	0.02	—	0.02	0.02	—	0.02	—	296	296	0.03	< 0.005	—	297
High Turnover (Sit Down Restaurant)	0.13	0.07	1.22	1.03	0.01	0.09	—	0.09	0.09	—	0.09	—	1,457	1,457	0.13	< 0.005	—	1,461
Total	0.60	0.30	5.24	2.84	0.03	0.42	—	0.42	0.42	—	0.42	—	6,540	6,540	0.58	0.01	—	6,559
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.13	0.07	1.15	0.49	0.01	0.09	—	0.09	0.09	—	0.09	—	1,454	1,454	0.13	< 0.005	—	1,458
Single Family Housing	0.31	0.15	2.62	1.12	0.02	0.21	—	0.21	0.21	—	0.21	—	3,328	3,328	0.29	0.01	—	3,338
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.73	4.73	< 0.005	< 0.005	—	4.75
Office Park	0.03	0.01	0.25	0.21	< 0.005	0.02	—	0.02	0.02	—	0.02	—	296	296	0.03	< 0.005	—	297
High Turnover (Sit Down Restaurant)	0.13	0.07	1.22	1.03	0.01	0.09	—	0.09	0.09	—	0.09	—	1,457	1,457	0.13	< 0.005	—	1,461
Total	0.60	0.30	5.24	2.84	0.03	0.42	—	0.42	0.42	—	0.42	—	6,540	6,540	0.58	0.01	—	6,559
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.02	0.01	0.21	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	241	241	0.02	< 0.005	—	241

Single Family Housing	0.06	0.03	0.48	0.20	< 0.005	0.04	—	0.04	0.04	—	0.04	—	551	551	0.05	< 0.005	—	553
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.78	0.78	< 0.005	< 0.005	—	0.79
Office Park	< 0.005	< 0.005	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	49.0	49.0	< 0.005	< 0.005	—	49.2
High Turnover (Sit Down Restaurant)	0.02	0.01	0.22	0.19	< 0.005	0.02	—	0.02	0.02	—	0.02	—	241	241	0.02	< 0.005	—	242
Total	0.11	0.06	0.96	0.52	0.01	0.08	—	0.08	0.08	—	0.08	—	1,083	1,083	0.10	< 0.005	—	1,086

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.13	0.07	1.14	0.49	0.01	0.09	—	0.09	0.09	—	0.09	—	1,448	1,448	0.13	< 0.005	—	1,452
Single Family Housing	0.31	0.15	2.61	1.11	0.02	0.21	—	0.21	0.21	—	0.21	—	3,313	3,313	0.29	0.01	—	3,322
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.73	4.73	< 0.005	< 0.005	—	4.75
Office Park	0.03	0.01	0.25	0.21	< 0.005	0.02	—	0.02	0.02	—	0.02	—	296	296	0.03	< 0.005	—	297
High Turnover (Sit Down Restaurant)	0.13	0.07	1.22	1.03	0.01	0.09	—	0.09	0.09	—	0.09	—	1,457	1,457	0.13	< 0.005	—	1,461

Total	0.60	0.30	5.22	2.83	0.03	0.42	—	0.42	0.42	—	0.42	—	6,519	6,519	0.58	0.01	—	6,537
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.13	0.07	1.14	0.49	0.01	0.09	—	0.09	0.09	—	0.09	—	1,448	1,448	0.13	< 0.005	—	1,452
Single Family Housing	0.31	0.15	2.61	1.11	0.02	0.21	—	0.21	0.21	—	0.21	—	3,313	3,313	0.29	0.01	—	3,322
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.73	4.73	< 0.005	< 0.005	—	4.75
Office Park	0.03	0.01	0.25	0.21	< 0.005	0.02	—	0.02	0.02	—	0.02	—	296	296	0.03	< 0.005	—	297
High Turnover (Sit Down Restaurant)	0.13	0.07	1.22	1.03	0.01	0.09	—	0.09	0.09	—	0.09	—	1,457	1,457	0.13	< 0.005	—	1,461
Total	0.60	0.30	5.22	2.83	0.03	0.42	—	0.42	0.42	—	0.42	—	6,519	6,519	0.58	0.01	—	6,537
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.02	0.01	0.21	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	240	240	0.02	< 0.005	—	240
Single Family Housing	0.06	0.03	0.48	0.20	< 0.005	0.04	—	0.04	0.04	—	0.04	—	548	548	0.05	< 0.005	—	550
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.78	0.78	< 0.005	< 0.005	—	0.79
Office Park	< 0.005	< 0.005	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	49.0	49.0	< 0.005	< 0.005	—	49.2
High Turnover (Sit Down Restaurant)	0.02	0.01	0.22	0.19	< 0.005	0.02	—	0.02	0.02	—	0.02	—	241	241	0.02	< 0.005	—	242
Total	0.11	0.05	0.95	0.52	0.01	0.08	—	0.08	0.08	—	0.08	—	1,079	1,079	0.10	< 0.005	—	1,082

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	19.6	19.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	1.65	1.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	4.14	3.91	0.38	41.4	< 0.005	0.02	—	0.02	0.02	—	0.02	—	116	116	< 0.005	< 0.005	—	117
Total	25.4	25.2	0.38	41.4	< 0.005	0.02	—	0.02	0.02	—	0.02	0.00	116	116	< 0.005	< 0.005	—	117
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	19.6	19.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	1.65	1.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	21.3	21.3	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	3.58	3.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.30	0.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.37	0.35	0.03	3.73	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.49	9.49	< 0.005	< 0.005	—	9.52
Total	4.25	4.23	0.03	3.73	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	9.49	9.49	< 0.005	< 0.005	—	9.52

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	19.6	19.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	1.65	1.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	4.14	3.91	0.38	41.4	< 0.005	0.02	—	0.02	0.02	—	0.02	—	116	116	< 0.005	< 0.005	—	117
Total	25.4	25.2	0.38	41.4	< 0.005	0.02	—	0.02	0.02	—	0.02	0.00	116	116	< 0.005	< 0.005	—	117

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	19.6	19.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	1.65	1.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	21.3	21.3	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	3.58	3.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.30	0.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.37	0.35	0.03	3.73	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.49	9.49	< 0.005	< 0.005	—	9.52
Total	4.25	4.23	0.03	3.73	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	9.49	9.49	< 0.005	< 0.005	—	9.52

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	10.7	29.7	40.4	1.10	0.03	—	75.7
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	62.1	1,002	1,064	6.45	0.16	—	1,273
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.43	1.19	1.61	0.04	< 0.005	—	3.02
Office Park	—	—	—	—	—	—	—	—	—	—	—	15.7	43.7	59.3	1.61	0.04	—	111
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	27.9	84.9	113	2.87	0.07	—	205
Total	—	—	—	—	—	—	—	—	—	—	—	117	1,161	1,278	12.1	0.29	—	1,667
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	10.7	29.7	40.4	1.10	0.03	—	75.7
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	62.1	1,002	1,064	6.45	0.16	—	1,273
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.43	1.19	1.61	0.04	< 0.005	—	3.02
Office Park	—	—	—	—	—	—	—	—	—	—	—	15.7	43.7	59.3	1.61	0.04	—	111
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	27.9	84.9	113	2.87	0.07	—	205

Total	—	—	—	—	—	—	—	—	—	—	—	117	1,161	1,278	12.1	0.29	—	1,667
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	1.77	4.92	6.69	0.18	< 0.005	—	12.5
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	10.3	166	176	1.07	0.03	—	211
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.07	0.20	0.27	0.01	< 0.005	—	0.50
Office Park	—	—	—	—	—	—	—	—	—	—	—	2.59	7.23	9.82	0.27	0.01	—	18.4
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	4.62	14.1	18.7	0.47	0.01	—	34.0
Total	—	—	—	—	—	—	—	—	—	—	—	19.3	192	212	2.00	0.05	—	276

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	10.7	29.7	40.4	1.10	0.03	—	75.7
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	62.1	1,002	1,064	6.45	0.16	—	1,273
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.43	1.19	1.61	0.04	< 0.005	—	3.02

Office Park	—	—	—	—	—	—	—	—	—	—	—	15.7	43.7	59.3	1.61	0.04	—	111
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	27.9	84.9	113	2.87	0.07	—	205
Total	—	—	—	—	—	—	—	—	—	—	—	117	1,161	1,278	12.1	0.29	—	1,667
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	10.7	29.7	40.4	1.10	0.03	—	75.7
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	62.1	1,002	1,064	6.45	0.16	—	1,273
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.43	1.19	1.61	0.04	< 0.005	—	3.02
Office Park	—	—	—	—	—	—	—	—	—	—	—	15.7	43.7	59.3	1.61	0.04	—	111
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	27.9	84.9	113	2.87	0.07	—	205
Total	—	—	—	—	—	—	—	—	—	—	—	117	1,161	1,278	12.1	0.29	—	1,667
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	1.77	4.92	6.69	0.18	< 0.005	—	12.5
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	10.3	166	176	1.07	0.03	—	211
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.07	0.20	0.27	0.01	< 0.005	—	0.50

Office Park	—	—	—	—	—	—	—	—	—	—	—	2.59	7.23	9.82	0.27	0.01	—	18.4
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	4.62	14.1	18.7	0.47	0.01	—	34.0
Total	—	—	—	—	—	—	—	—	—	—	—	19.3	192	212	2.00	0.05	—	276

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	184	0.00	184	18.4	0.00	—	643
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	79.2	0.00	79.2	7.91	0.00	—	277
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	1.70	0.00	1.70	0.17	0.00	—	5.94
Office Park	—	—	—	—	—	—	—	—	—	—	—	23.1	0.00	23.1	2.30	0.00	—	80.7
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	308	0.00	308	30.8	0.00	—	1,077
Total	—	—	—	—	—	—	—	—	—	—	—	596	0.00	596	59.5	0.00	—	2,084

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	184	0.00	184	18.4	0.00	—	643
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	79.2	0.00	79.2	7.91	0.00	—	277
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	1.70	0.00	1.70	0.17	0.00	—	5.94
Office Park	—	—	—	—	—	—	—	—	—	—	—	23.1	0.00	23.1	2.30	0.00	—	80.7
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	308	0.00	308	30.8	0.00	—	1,077
Total	—	—	—	—	—	—	—	—	—	—	—	596	0.00	596	59.5	0.00	—	2,084
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	30.4	0.00	30.4	3.04	0.00	—	107
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.1	0.00	13.1	1.31	0.00	—	45.8
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.28	0.00	0.28	0.03	0.00	—	0.98
Office Park	—	—	—	—	—	—	—	—	—	—	—	3.82	0.00	3.82	0.38	0.00	—	13.4
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	51.0	0.00	51.0	5.09	0.00	—	178
Total	—	—	—	—	—	—	—	—	—	—	—	98.6	0.00	98.6	9.86	0.00	—	345

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	184	0.00	184	18.4	0.00	—	643
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	79.2	0.00	79.2	7.91	0.00	—	277
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	1.70	0.00	1.70	0.17	0.00	—	5.94
Office Park	—	—	—	—	—	—	—	—	—	—	—	23.1	0.00	23.1	2.30	0.00	—	80.7
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	308	0.00	308	30.8	0.00	—	1,077
Total	—	—	—	—	—	—	—	—	—	—	—	596	0.00	596	59.5	0.00	—	2,084
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	184	0.00	184	18.4	0.00	—	643
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	79.2	0.00	79.2	7.91	0.00	—	277
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	1.70	0.00	1.70	0.17	0.00	—	5.94
Office Park	—	—	—	—	—	—	—	—	—	—	—	23.1	0.00	23.1	2.30	0.00	—	80.7

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	308	0.00	308	30.8	0.00	—	1,077
Total	—	—	—	—	—	—	—	—	—	—	—	596	0.00	596	59.5	0.00	—	2,084
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	30.4	0.00	30.4	3.04	0.00	—	107
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.1	0.00	13.1	1.31	0.00	—	45.8
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.28	0.00	0.28	0.03	0.00	—	0.98
Office Park	—	—	—	—	—	—	—	—	—	—	—	3.82	0.00	3.82	0.38	0.00	—	13.4
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	51.0	0.00	51.0	5.09	0.00	—	178
Total	—	—	—	—	—	—	—	—	—	—	—	98.6	0.00	98.6	9.86	0.00	—	345

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.14	3.14
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.72	2.72
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.11	0.11
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	75.0	75.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	81.0	81.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.14	3.14
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.72	2.72
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.11	0.11
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	75.0	75.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	81.0	81.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.45	0.45
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.4	12.4
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.4	13.4

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.14	3.14
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.72	2.72
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.11	0.11

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	75.0	75.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	81.0	81.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.14	3.14
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.72	2.72
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.11	0.11
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	75.0	75.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	81.0	81.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.52	0.52
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.45	0.45
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.4	12.4
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.4	13.4

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	520	520	520	189,800	4,018	4,018	4,018	1,466,740
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Apartments Mid Rise	1,950	1,950	1,950	711,750	15,069	15,069	15,069	5,500,275
Strip Mall	200	200	200	73,000	1,511	1,511	1,511	551,389
Office Park	320	320	320	116,800	2,417	2,417	2,417	882,223
Single Family Housing	690	690	690	251,850	5,332	5,332	5,332	1,946,251
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	520	520	520	189,800	4,018	4,018	4,018	1,466,740
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Apartments Mid Rise	1,950	1,950	1,950	711,750	15,069	15,069	15,069	5,500,275
Strip Mall	200	200	200	73,000	1,511	1,511	1,511	551,389
Office Park	320	320	320	116,800	2,417	2,417	2,417	882,223
Single Family Housing	690	690	690	251,850	5,332	5,332	5,332	1,946,251
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
1658414.25	552,805	145,500	48,500	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	308,648	453	0.0330	0.0040	932,984
Single Family Housing	99,494	453	0.0330	0.0040	798,905
Apartments Mid Rise	1,191,908	453	0.0330	0.0040	3,602,905
Strip Mall	29,870	453	0.0330	0.0040	14,772
Office Park	732,722	453	0.0330	0.0040	924,226
Single Family Housing	1,193,927	453	0.0330	0.0040	9,586,860
High Turnover (Sit Down Restaurant)	1,563,364	453	0.0330	0.0040	4,547,023

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	310,132	453	0.0330	0.0040	923,562
Single Family Housing	103,282	453	0.0330	0.0040	749,709
Apartments Mid Rise	1,193,392	453	0.0330	0.0040	3,593,483
Strip Mall	29,870	453	0.0330	0.0040	14,772
Office Park	732,722	453	0.0330	0.0040	924,226
Single Family Housing	1,193,927	453	0.0330	0.0040	9,586,860
High Turnover (Sit Down Restaurant)	1,563,364	453	0.0330	0.0040	4,547,023

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	3,468,226	0.00
Single Family Housing	25,790,321	129,881,120
Apartments Mid Rise	2,103,073	0.00
Strip Mall	222,218	0.00
Office Park	8,175,752	0.00
Single Family Housing	6,641,285	33,445,778
High Turnover (Sit Down Restaurant)	14,569,618	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	3,468,226	0.00
Single Family Housing	25,790,321	129,881,120

Apartments Mid Rise	2,103,073	0.00
Strip Mall	222,218	0.00
Office Park	8,175,752	0.00
Single Family Housing	6,641,285	33,445,778
High Turnover (Sit Down Restaurant)	14,569,618	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	70.2	—
Single Family Housing	11.2	—
Apartments Mid Rise	271	—
Strip Mall	3.15	—
Office Park	42.8	—
Single Family Housing	136	—
High Turnover (Sit Down Restaurant)	571	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	70.2	—
Single Family Housing	11.2	—
Apartments Mid Rise	271	—
Strip Mall	3.15	—
Office Park	42.8	—
Single Family Housing	136	—
High Turnover (Sit Down Restaurant)	571	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Office Park	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Office Park	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
High Turnover (Sit Down Restaurant)	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
High Turnover (Sit Down Restaurant)	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
High Turnover (Sit Down Restaurant)	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Office Park	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Office Park	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
High Turnover (Sit Down Restaurant)	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
High Turnover (Sit Down Restaurant)	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
High Turnover (Sit Down Restaurant)	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	5.68	annual days of extreme heat
Extreme Precipitation	5.50	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	45.0
AQ-PM	66.1
AQ-DPM	96.2
Drinking Water	52.7
Lead Risk Housing	24.4
Pesticides	0.00
Toxic Releases	79.2
Traffic	68.7
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	25.1
Haz Waste Facilities/Generators	44.7
Impaired Water Bodies	66.7
Solid Waste	42.3
Sensitive Population	—
Asthma	35.8
Cardio-vascular	47.2
Low Birth Weights	7.17
Socioeconomic Factor Indicators	—

Education	20.9
Housing	50.7
Linguistic	30.0
Poverty	42.6
Unemployment	45.8

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	66.05928397
Employed	97.78005903
Median HI	50.49403311
Education	—
Bachelor's or higher	85.98742461
High school enrollment	100
Preschool enrollment	78.71166431
Transportation	—
Auto Access	15.29577826
Active commuting	83.42101886
Social	—
2-parent households	0.936738098
Voting	40.18991403
Neighborhood	—
Alcohol availability	4.516874118
Park access	81.35506224
Retail density	58.14192224
Supermarket access	94.25125112

Tree canopy	21.14718337
Housing	—
Homeownership	0.590273322
Housing habitability	26.43397921
Low-inc homeowner severe housing cost burden	99.12742205
Low-inc renter severe housing cost burden	68.71551392
Uncrowded housing	10.40677531
Health Outcomes	—
Insured adults	54.27948159
Arthritis	98.1
Asthma ER Admissions	59.4
High Blood Pressure	96.7
Cancer (excluding skin)	89.7
Asthma	83.3
Coronary Heart Disease	97.4
Chronic Obstructive Pulmonary Disease	97.2
Diagnosed Diabetes	95.7
Life Expectancy at Birth	81.8
Cognitively Disabled	93.6
Physically Disabled	98.1
Heart Attack ER Admissions	34.3
Mental Health Not Good	76.1
Chronic Kidney Disease	95.6
Obesity	77.3
Pedestrian Injuries	94.6
Physical Health Not Good	92.3
Stroke	96.9
Health Risk Behaviors	—

Binge Drinking	6.6
Current Smoker	70.9
No Leisure Time for Physical Activity	88.3
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	19.0
Elderly	98.6
English Speaking	73.8
Foreign-born	76.3
Outdoor Workers	35.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	0.9
Traffic Density	60.1
Traffic Access	87.4
Other Indices	—
Hardship	35.5
Other Decision Support	—
2016 Voting	48.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	39.0
Healthy Places Index Score for Project Location (b)	60.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Characteristics: Project Details	Adjusted project characteristics based on project area
Characteristics: Utility Information	adjusted project utility info based on project area
Operations: Hearths	removed hearths, not included in plans
Operations: Water and Waste Water	adjusted electricity intensity factor for Maui
Operations: Vehicle Data	Adjusted traffic data based on TIAR

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VOLUME VIII OF IX

Appendices Q to V

Draft Environmental Impact Statement

MĀKENA MAUKA

(TMK Nos. (2)2-1-005:108, (2)2-1-006:036 and 057, (2)2-1-007:068, 092 and 093, (2)2-1-008:078, 079, 081, and 090, and (2)2-1-031:036(por.))

Prepared for:
AREG AC Makena Propco LLC

Accepting Authority:

Maui Planning Commission

December 2025

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December 2025

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ACOUSTIC STUDY

ACOUSTIC STUDY FOR THE MAKENA MAUKA PROJECT MAKENA, MAUI, HAWAII

Prepared for:

AREG AC Makena Propco LLC

Prepared by:

Y. EBISU & ASSOCIATES
1126 12th Avenue, Room 305
Honolulu, Hawaii 96816

JUNE 2025

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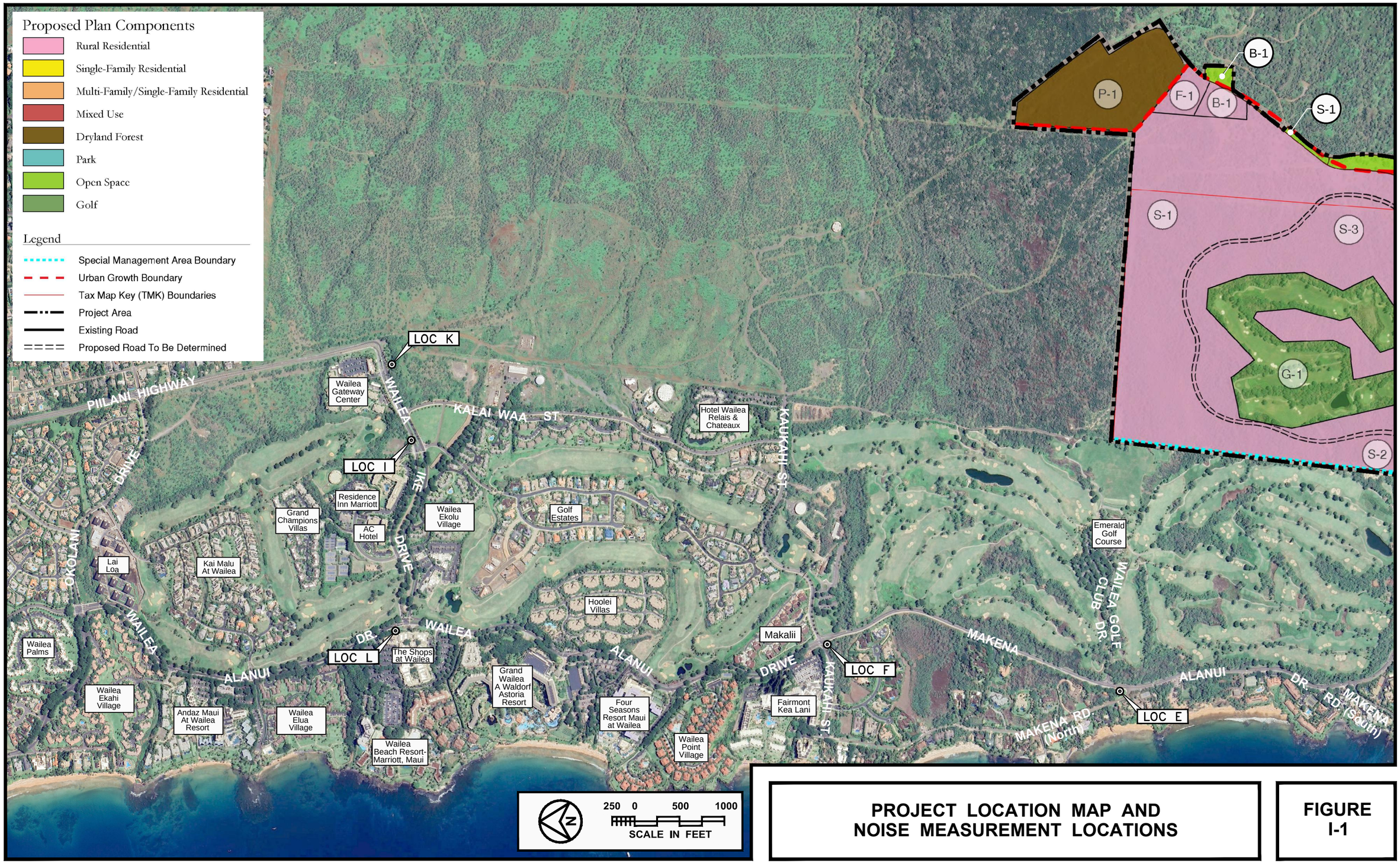
CHAPTER 1. SUMMARY

Proposed Action. Mâkena Mauka is a low-density master-planned residential community that will offer market rate housing together with residential workforce housing, with a mixture of rural and single-family lots and multifamily residential units, within an area that has largely been planned for such uses for decades. The project will incorporate the existing 18-hole Mâkena North Golf Course and the 18-hole Mâkena South Golf Course (to be renovated as part of the land plan), together with a community gathering place, hiking trails, programs to support connectivity, walking, bicycling, and golf cart paths, beach parking for the public, areas reserved for conservation/open space, and areas reserved for public beach access. The Applicant's current vision for the Mâkena Mauka land plan includes 652 housing units, including 109 on-site residential workforce housing units, and approximately 135,000 square feet of operational support buildings, which include golf maintenance, staff offices, restaurants, back of house, golf operations and other uses; within the approximately 1,043.71 acre total project area which includes approximately 473 acres of parcels proposed for residential development.

The existing and future traffic noise levels in the vicinity of the proposed Mâkena Mauka Project were evaluated for their potential impact on present and future noise sensitive areas. Figure I-1 depicts the location of the project site. The dates of the measurements included days in July 2023, October 2023, and August 2024. The future traffic noise levels along the primary access roadways to the project were calculated for the year 2058.

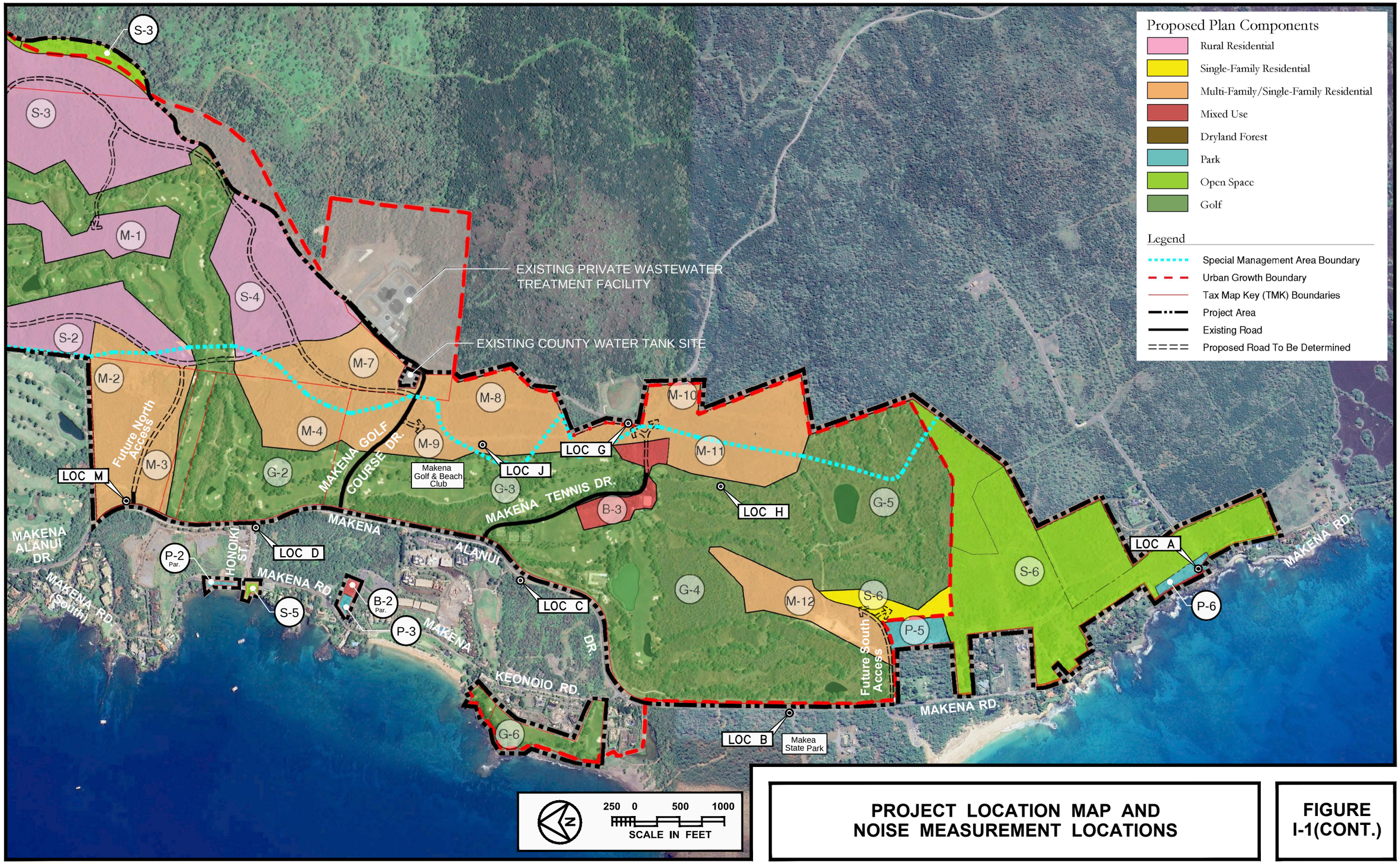
Along Makena Alanui Drive, traffic noise levels were expected to increase by 3.5 to 5.1 DNL (Day-Night Average Sound Level) between CY (Calendar Year) 2024 and CY 2058 as a result of both project and non-project traffic. Traffic noise increases due to project traffic were predicted to range from 0.4 to 1.2 DNL which was much lower than the range of the noise increases caused by non-project traffic (3.1 to 4.2 DNL) on Makena Alanui Drive. While these DNL changes may seem moderate to large, the 34-year forecast period for this project is relatively long when compared to other 10 to 20 year forecast periods. On an annual averaged basis (without compounding), the annual project traffic noise contribution is anticipated to increase by 3.2 to 3.9 percent per year, and the annual non-project traffic noise contribution is anticipated to increase by 6.0 to 7.7 percent per year. Project traffic noise level increases were considered to be well below anticipated non-project traffic noise level increases.

Along Wailea Alanui Drive, Wailea Ike Drive, and Piilani Highway, traffic noise levels were expected to increase by 1.6 to 6.1 DNL between CY 2024 and CY 2058 as a result of both project and non-project traffic, with traffic noise increases due to project and non-project traffic predicted to range from 0.3 to 0.9 DNL and 1.2 to 5.2 DNL, respectively. On an annual averaged basis (without compounding), the annual project traffic noise contribution is anticipated to increase by 3.2 to 3.6 percent per year, and the annual non-project traffic noise contribution is anticipated to increase by 3.9 to 9.7



PROJECT LOCATION MAP AND NOISE MEASUREMENT LOCATIONS

FIGURE I-1



PROJECT LOCATION MAP AND NOISE MEASUREMENT LOCATIONS

FIGURE I-1(CONT.)

percent per year. For this reason, project traffic noise level increases were also considered to be well below anticipated non-project traffic noise level increases.

At future residences on parcels M-2 and M-3 of the project (see Figure I-1), traffic noise mitigation measures may be required if adequate setback distances in the order of 83 to 94 FT from the centerline of Makena Alanui Drive cannot be provided. If required, the use of sound attenuating walls may be possible for ground floor receptors, but if multistory residences are provided, the closure and air conditioning of the upper floors will probably be required.

Unavoidable, but temporary, noise impacts may occur during the construction of the proposed project. Because construction activities may be audible at existing and planned developed properties within the project environs (or area), the acoustic environment may be degraded during periods of construction. Mitigation measures to reduce construction noise to inaudible levels will not be practical in all cases. For this reason, the use of quiet equipment and construction curfew periods as required under the State Department of Health (DOH) noise regulations are recommended to minimize construction noise impacts.

CHAPTER II. PURPOSE

The objectives of this study were to describe and evaluate the existing and future traffic noise environment in the environs of the proposed Mâkena Mauka Project at Makena on the island of Maui. Traffic noise level increases and impacts associated with the proposed project were to be determined within the project site as well as along the public roadways expected to service the project traffic. A specific objective was to determine the future traffic noise level increases associated with both project and non-project traffic, and the potential noise impacts associated with these increases. Assessments of possible impacts from short term construction noise at the project site were also included in the noise study objectives. Recommendations for minimizing these noise impacts were also to be provided as required.

CHAPTER III. NOISE DESCRIPTORS AND THEIR RELATIONSHIP TO LAND USE COMPATIBILITY

The noise descriptor currently used by federal agencies to assess environmental noise is the Day-Night Average Sound Level (DNL or Ldn). This descriptor incorporates a 24-hour average of instantaneous A-Weighted sound levels as read on a standard Sound Level Meter. The maximum A-Weighted sound level occurring while a noise source such as a heavy truck or aircraft is moving past a listener (i.e., the maximum sound level from a "single event") is referred to as the "Lmax value". The mathematical product (or integral) of the instantaneous sound level times the duration of the event is known as the "Sound Exposure Level", or Lse, which is analogous to the energy of the time-varying sound levels associated with a single event.

The DNL values represent the average noise during a typical day of the year. DNL exposure levels of 55 or less are typical of quiet rural or suburban areas. DNL exposure levels of 55 to 65 are typical of urbanized areas with medium to high levels of activity and street traffic. DNL exposure levels above 65 are representative of densely developed urban areas and areas fronting high volume roadways.

By definition, the minimum averaging period for the DNL descriptor is 24 hours. Additionally, sound levels which occur during the nighttime hours of 10:00 PM to 7:00 AM are increased by 10 decibels (dB) prior to computing the 24-hour average by the DNL descriptor. Because of the averaging used, DNL values in urbanized areas typically range between 50 and 75 DNL. In comparison, the typical range of intermittent noise events may have maximum Sound Level Meter readings between 75 and 105 dBA. A more complete list of noise descriptors is provided in Appendix B to this report. In Appendix B, the Ldn descriptor symbol is used in place of the DNL descriptor symbol.

Table III-1, extracted from Reference 1, categorizes the various DNL levels of outdoor noise exposure with severity classifications. Figure III-1, extracted from Reference 2, presents suggested land use compatibility guidelines for residential and nonresidential land uses. A general consensus among federal agencies has developed whereby residential housing development is considered acceptable in areas where exterior noise does not exceed 65 DNL. This value of 65 DNL is used as a federal regulatory threshold for determining the necessity for special noise abatement measures when applications for federal funding assistance are made.

As a general rule, noise levels of 55 DNL or less occur in rural areas, or in areas which are removed from high volume roadways. In urbanized areas which are shielded from high volume streets, DNL levels generally range from 55 to 65 DNL, and are usually controlled by motor vehicle traffic noise. Residences which front major roadways are generally exposed to levels of 65 DNL, and as high as 75 DNL when the roadway is a high speed freeway. Due to noise shielding effects from intervening structures, interior lots are usually exposed to 3 to 10 DNL lower noise levels than the

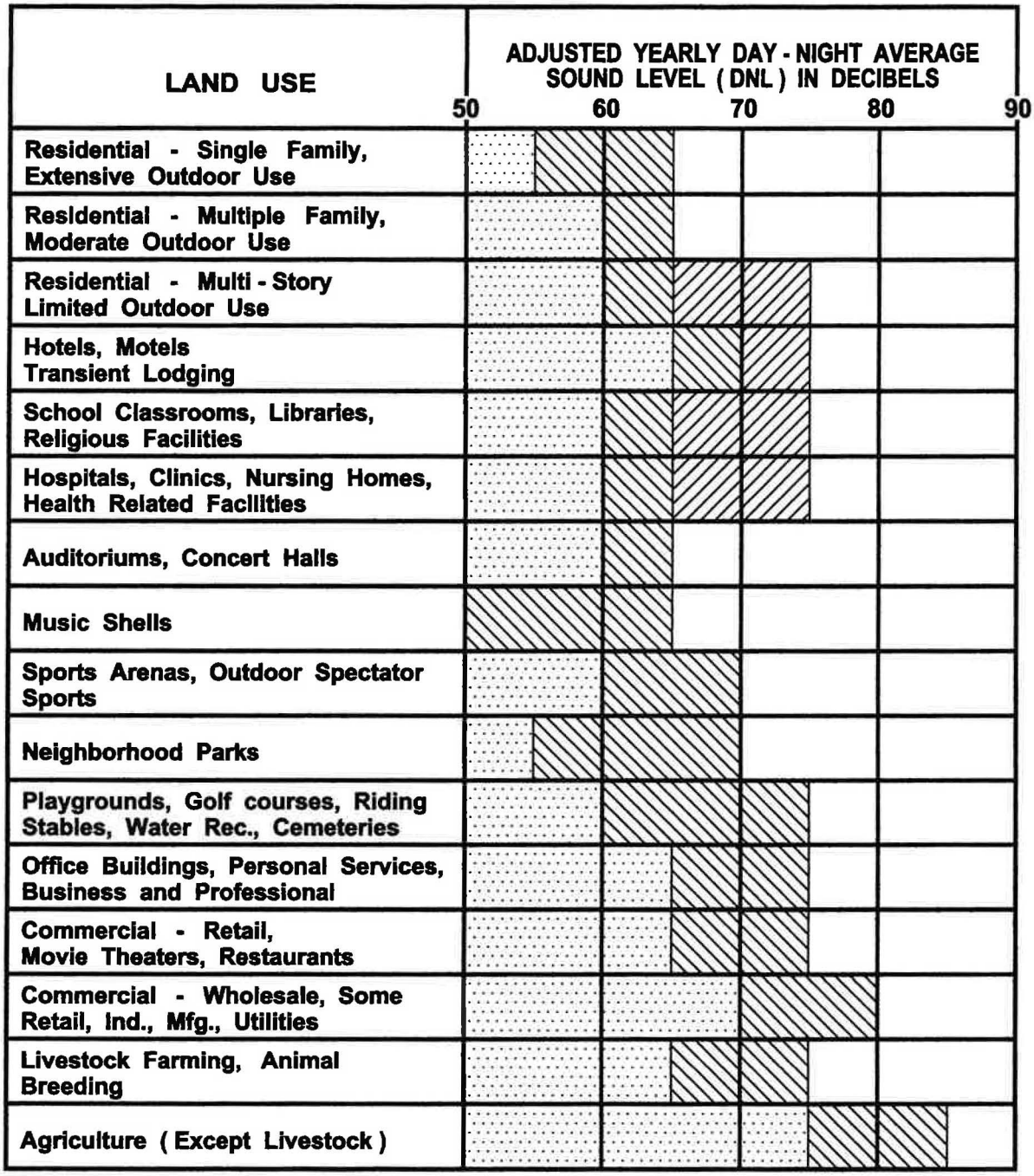
TABLE III-1

EXTERIOR NOISE EXPOSURE CLASSIFICATION (RESIDENTIAL LAND USE)

NOISE EXPOSURE CLASS	DAY–NIGHT SOUND LEVEL	EQUIVALENT SOUND LEVEL	FEDERAL (1) STANDARD
Minimal Exposure	Not Exceeding 55 DNL	Not Exceeding 55 Leq	Unconditionally Acceptable
Moderate Exposure	Above 55 DNL But Not Above 65 DNL	Above 55 Leq But Not Above 65 Leq	Acceptable(2)
Significant Exposure	Above 65 DNL But Not Above 75 DNL	Above 65 Leq But Not Above 75 Leq	Normally Unacceptable
Severe Exposure	Above 75 DNL	Above 75 Leq	Unacceptable

Notes: (1) Federal Housing Administration, Veterans Administration, Department of Defense, and Department of Transportation.

(2) Federal Highway Administration (FHWA) uses the Equivalent Sound Level (Leq) instead of the DNL descriptor. For planning purposes, both are equivalent if: (a) heavy trucks do not exceed 10 percent of total traffic flow in vehicles per 24 hours, and (b) traffic between 10:00 PM and 7:00 AM does not exceed 15 percent of average daily traffic flow in vehicles per 24 hours. The noise mitigation threshold used by FHWA for residences is 67 Leq.



LAND USE COMPATIBILITY WITH YEARLY AVERAGE DAY - NIGHT SOUND LEVEL (DNL) AT A SITE FOR BUILDINGS AS COMMONLY CONSTRUCTED.
(Source: American National Standards Institute S12.9 - 1988/Part 5)

FIGURE III-1

front lots which are not shielded from the traffic noise.

For the purposes of determining noise acceptability for funding assistance from federal agencies, an exterior noise level of 65 DNL or lower is considered acceptable. These federal agencies include the Federal Aviation Administration (FAA), Department of Defense (DOD); Federal Housing Administration, Housing and Urban Development (FHA/HUD), and Veterans Administration (VA). This standard is applied nationally (see Reference 3), including Hawaii.

Because of our open-living conditions, the predominant use of naturally ventilated dwellings, and the relatively low exterior-to-interior sound attenuation afforded by these naturally ventilated structures, an exterior noise level of 65 DNL does not eliminate all risks of noise impacts. Because of these factors, a lower level of 55 DNL is considered as the "Unconditionally Acceptable" (or "Near-Zero Risk") level of exterior noise (see Reference 4). For typical, naturally ventilated structures in Hawaii, an exterior noise level of 55 DNL results in an interior level of approximately 45 DNL, which is considered to be the "Unconditionally Acceptable" (or "Near-Zero Risk") level of interior noise. However, after considering the cost and feasibility of applying the lower level of 55 DNL, government agencies such as FHA/HUD and VA have selected 65 DNL as a more appropriate regulatory standard.

For commercial, industrial, and other non-noise sensitive land uses, exterior noise levels as high as 75 DNL are generally considered acceptable. Exceptions to this occur when naturally ventilated office and other commercial establishments are exposed to exterior levels which exceed 65 DNL.

In the State of Hawaii, the State Department of Health (DOH) regulates noise from on-site activities. State DOH noise regulations are expressed in maximum allowable property line noise limits rather than DNL (see Reference 5). The noise limits apply on all islands of the State, including the island of Maui. Although they are not directly comparable to noise criteria expressed in DNL, State DOH noise limits for preservation/residential, apartment/commercial, and agricultural/industrial lands equate to approximately 55, 60, and 76 DNL, respectively.

Because the proposed project site is located on lands primarily designated for residential uses, DOH noise limits would be applicable along the lot boundary lines or at receptor locations for any stationary machinery, or equipment related to residential activities. These property line limits range between 60 dBA and 45 dBA during the daytime and nighttime periods, respectively, for lots zoned for residential use. These noise limits cannot be exceeded for more than 2 minutes in any 20-minute time period under the State DOH noise regulations. The State DOH noise regulations do not apply to aircraft or motor vehicles. During construction activities, the DOH noise regulations allow for exceedances of the property line noise limits through the use of a noise permit system, where noisy construction activities are permitted only during the daytime hours on weekdays (excluding holidays) and on Saturdays.

CHAPTER IV. GENERAL STUDY METHODOLOGY

Existing traffic and background ambient noise levels were measured at nine locations in the project environs in August 2024 to provide a basis for developing the existing and future traffic noise levels along Makena Alanui Drive and the other project access roads, and for determining the existing background ambient noise levels in the project area. Earlier traffic noise measurements obtained in October 2023 along Wailea Ike Drive and Wailea Alanui Drive were also used for this project. The locations of the noise measurement sites are shown in Figure I-1. The traffic noise measurement results, and their comparisons with computer model predictions of existing traffic noise levels are summarized in Table IV-1. The results of the traffic noise measurements were compared with calculations of existing traffic noise levels to validate the computer model used. Where only background noise measurements were obtained, such as at Locations G, H, and K, which were removed from existing roadways, traffic volumes and predicted noise levels were not shown in Table IV-1.

Traffic noise calculations for the existing conditions as well as noise predictions for the future conditions with and without the project were performed using the Federal Highway Administration (FHWA) Noise Prediction Model, Version 2.5 (Reference 6). Traffic data entered into the noise prediction model were: hourly traffic volumes, average vehicle speeds, estimates of traffic mix, and loose or hard soil propagation loss factors. The traffic assignments for the project (Reference 7) and Hawaii State Department of Transportation (HDOT) counts on Wailea Alanui Drive (Reference 8) and Wailea Ike Drive (Reference 9) were the primary sources of data inputs to the model. Appendix C summarizes the existing and future projections of AM and PM peak hour traffic volumes which were available from Reference 7.

For existing and future traffic, it was assumed that the average noise levels, or Leq(h), during the weekday PM peak hour were equal to the weekday 24-hour DNL along Wailea Ike Drive, 0.4 dB less than the weekday 24-hour DNL along Piilani Highway, and 0.8 dB greater than the weekday 24-hour DNL along the other roadway segments in the project environs. The assumptions were based on computations of the weekday hourly Leq's and the 24-hour DNL's of traffic noise on Wailea Ike Drive and Wailea Alanui Drive contained in the HDOT traffic counts of References 8 and 9 following the COVID-19 crisis (see Figures IV-1 and IV-2).

Traffic noise calculations for both the existing and future conditions in the project environs were developed for ground level receptors without the benefit of noise shielding effects from buildings or natural terrain features. Traffic assignments with and without the project were obtained from the project's traffic turning movements (Reference 7). The forecasted increases in traffic noise levels over existing levels were calculated for both scenarios, and noise impact risks evaluated. The relative contributions of non-project and project related traffic to the total noise levels were also calculated, and an evaluation was made of possible traffic noise impacts resulting from the project.

TABLE IV-1
TRAFFIC AND BACKGROUND NOISE MEASUREMENT RESULTS

	LOCATION	Time of Day (HRS)	Ave. Speed (MPH)	Hourly Traffic Volume AUTO	M.TRUCK	H.TRUCK	Measured Leq (dB)	Predicted Leq (dB)
I	50 FT from the center-line of Wailea Ike Dr. on un-developed parcel. (7/25/23)	0929 TO 1029	32	889	22	23	66.3	66.2
K	100.5 FT from the center-line of Wailea Ike Dr. (10/23/23)	1520 TO 1520	30	905	24	15	58.7	58.6
K	100.5 FT from the center-line of Wailea Ike Dr. (10/24/23)	0714 TO 0812	33	891	18	9	57.3	57.6
L	87 FT from the center-line of Wailea Alanui Dr. (10/23/23)	1255 TO 1355	31	621	14	5	57.2	57.2
A	102 FT from the center-line of Makena Rd. (8/20/24)	1104 TO 1204	20	80	0	0	52.9 (1)	42.8
B	60 FT from the center-line of Makena Alanui Dr. (8/20/24)	1234 TO 1339	30	198	1	0	53.9	53.7
C	59 FT from the center-line of Makena Alanui Dr. (8/20/24)	1407 TO 1512	43	264	3	1	60.1	60
B	60 FT from the center-line of Makena Alanui Dr. (8/20/24)	1528 TO 1628	33	163	2	0	54.4	54.3

TABLE IV-1 (CONTINUED)
TRAFFIC AND BACKGROUND NOISE MEASUREMENT RESULTS

	LOCATION	Time of Day (HRS)	Ave. Speed (MPH)	Hourly Traffic Volume -------- AUTO	M.TRUCK	H.TRUCK	Measured Leq (dB)	Predicted Leq (dB)
B	60 FT from the center-line of Makena Alanui Dr. (8/21/24)	0730 TO 0830	38	75	0	0	52.8	52.6
C	59 FT from the center-line of Makena Alanui Dr. (8/21/24)	0844 TO 0944	38	184	9	5	59.0	58.9
D	57 FT from the center-line of Makena Alanui Dr. (8/21/24)	1017 TO 1117	43	276	12	15	63.0	62.9
F	63 FT from the center-line of Makena Alanui Dr. (8/21/24)	1149 TO 1249	37	437	7	6	60.9	60.8
F	63 FT from the center-line of Makena Alanui Dr. (8/21/24)	1525 TO 1625	40	469	8	0	61.1	61.1
F	63 FT from the center-line of Makena Alanui Dr. (8/22/24)	0730 TO 0830	41	283	5	3	60.9	60.8
E	58 FT from the center-line of Makena Alanui Dr. (8/22/24)	0849 TO 0949	46	300	9	8	63.3	63.3
C	59 FT from the center-line of Makena Alanui Dr. (8/22/24)	1106 TO 1206	42	238	6	2	59.9	59.9

TABLE IV-1 (CONTINUED)
TRAFFIC AND BACKGROUND NOISE MEASUREMENT RESULTS

	LOCATION	Time of Day (HRS)	Ave. Speed (MPH)	Hourly Traffic Volume AUTO	M.TRUCK	H.TRUCK	Measured Leq (dB)	Predicted Leq (dB)
G	At Gate on paved road within Project Site. (8/22/24)	1223 TO 1243	N/A	N/A	N/A	N/A	43.7 (2)	N/A
H	At large storage area at end of dirt road within Project Site. (8/22/24)	1250 TO 1310	N/A	N/A	N/A	N/A	37.1	N/A
J	On paved road north of water well and storage tank. (8/22/24)	1319 TO 1339	N/A	N/A	N/A	N/A	44.9 (3)	N/A
E	58 FT from the center-line of Makena Alanui Dr. (8/22/24)	1404 TO 1504	47	368	12	3	63.3	63.3
D	57 FT from the center-line of Makena Alanui Dr. (8/22/24)	1530 TO 1630	43	306	3	4	60.4 (4)	60.4

Notes:

(1) Background noise levels dominated by surf noise at shoreline.
(2) Utility cart passby noise event parsed from measured background noise levels.
(3) Water truck passby noise events parsed from measured background noise levels.
(4) Local heavy truck noise event on Honoki Street parsed from measured background noise levels.

FIGURE IV-1
HOURLY TRAFFIC NOISE LEVELS VS. TIME OF DAY
STA. B74313700048 WAILEA IKE DR. BETWEEN WAILEA ALANUI DR. AND WAILEA IKI PL., MAUI; 12/13/23

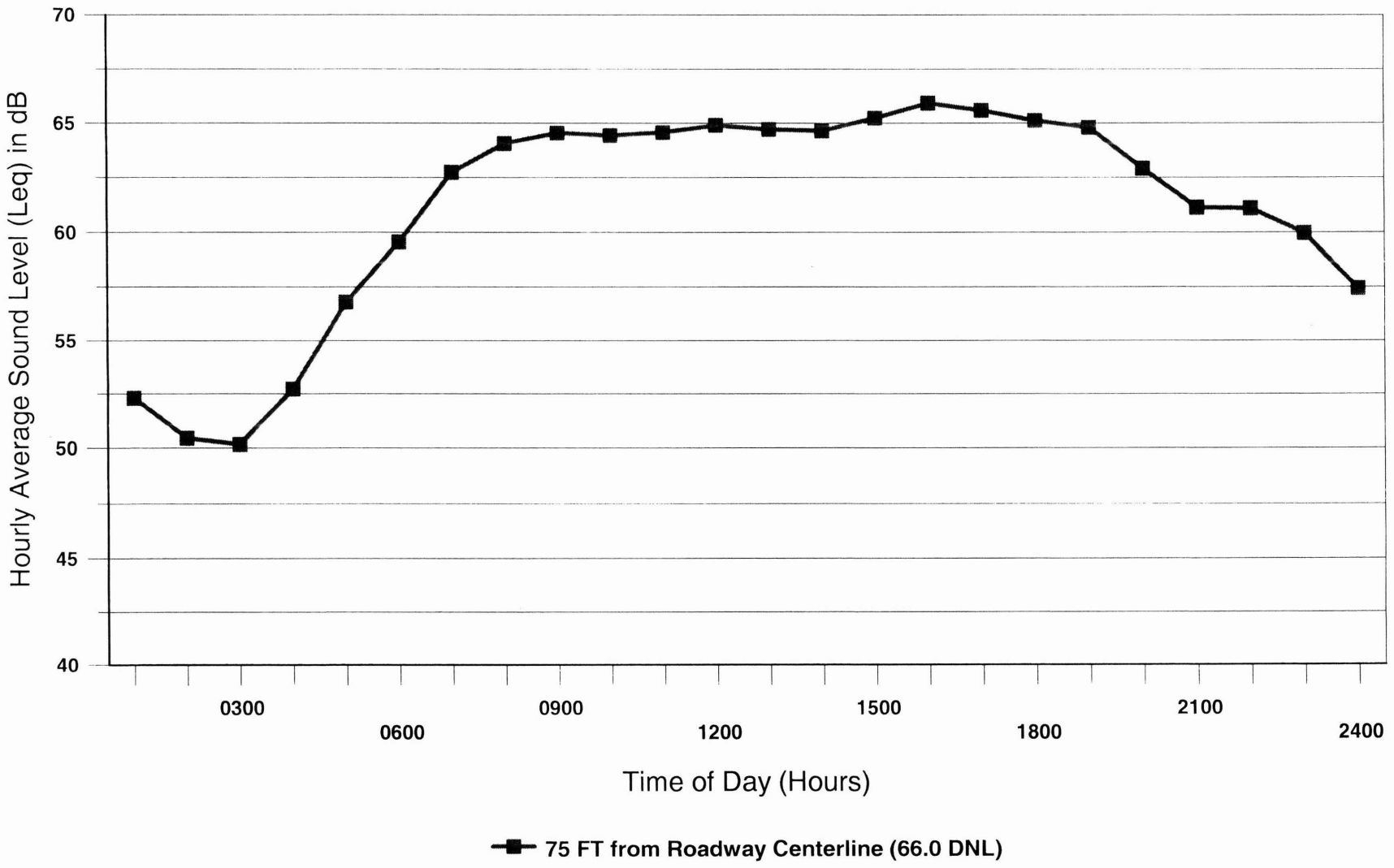
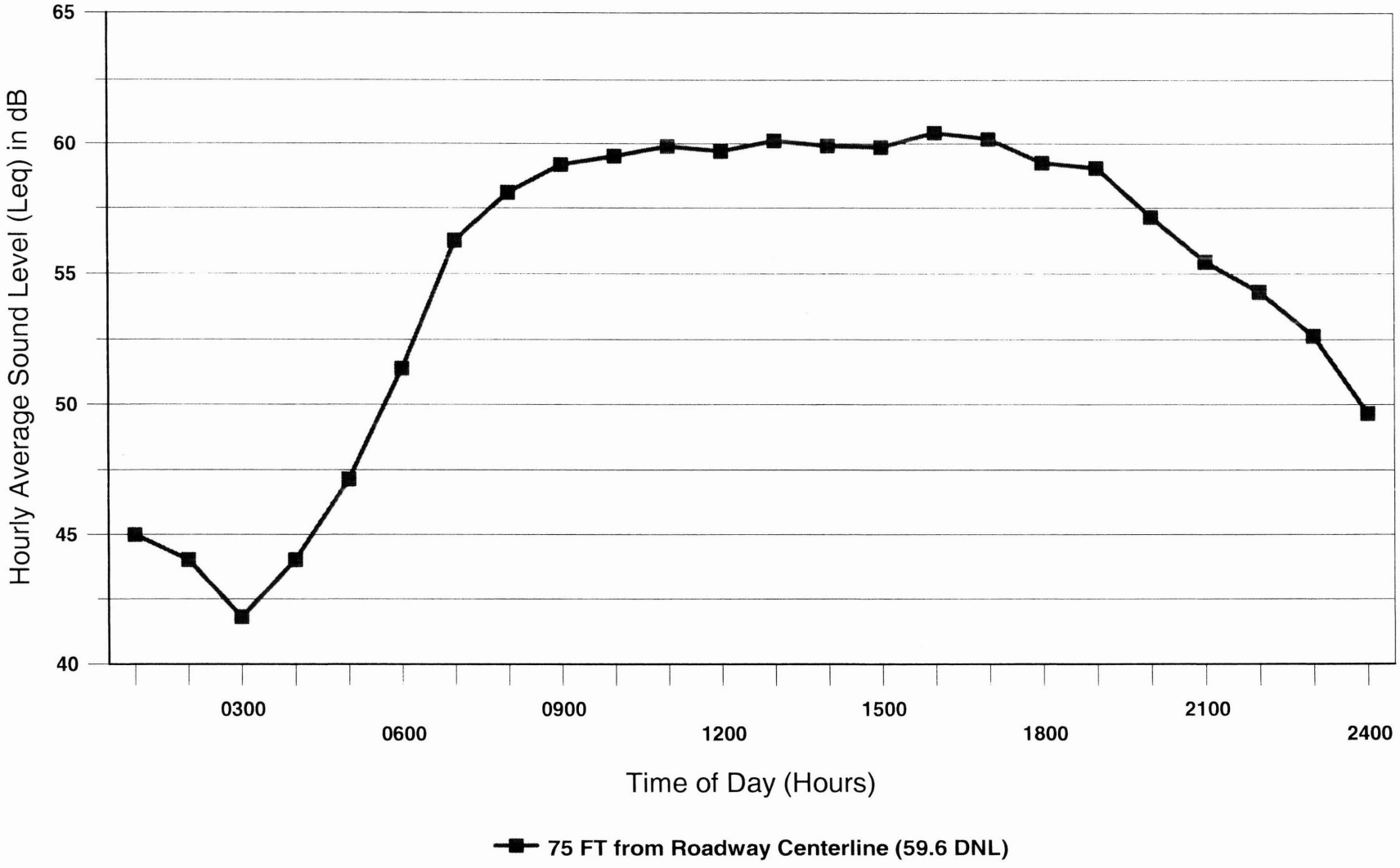


FIGURE IV-2
HOURLY TRAFFIC NOISE LEVELS VS. TIME OF DAY
STA. B74313500082 WAILEA ALANUI DR. BETWEEN MALUKAI LN. AND HALE ALII PL., MAUI; 12/12/23



Evaluations of potential construction noise impacts and mitigation measures were included in this study.

CHAPTER V. EXISTING NOISE ENVIRONMENT

The existing traffic noise levels in the project environs are controlled by traffic along Wailea Ike Drive, Wailea Alanui Drive, and Makena Alanui Drive. Within the Mâkena Mauka Project lands, existing background noise levels along the mauka boundaries are controlled by distant traffic on Makena Alanui Drive, construction vehicles and activities, aircraft flybys, birds, golf course activities, and wind moving foliage. Along the makai boundaries of the project lands, traffic along Makena Alanui Drive, local street traffic, aircraft flybys, birds, golf course and tennis court activities, construction, surf, wind moving foliage, and landscaping activities control the background ambient noise levels.

Traffic and background noise measurement locations are shown in Figure I-1. Figures V-1, V-2, and V-3 are histograms of short term background noise levels measured at Locations G, H, and J on the project site. The intermittent noise events from local motor vehicle traffic were deleted (or parsed) from the histograms of Locations G and J as noted in Table IV-1. Distant aircraft noise events contributed to the higher measured noise levels at Location H. Existing background noise levels on the project site probably range from 35 to 45 DNL in areas which are removed from local motor vehicle traffic or human activities.

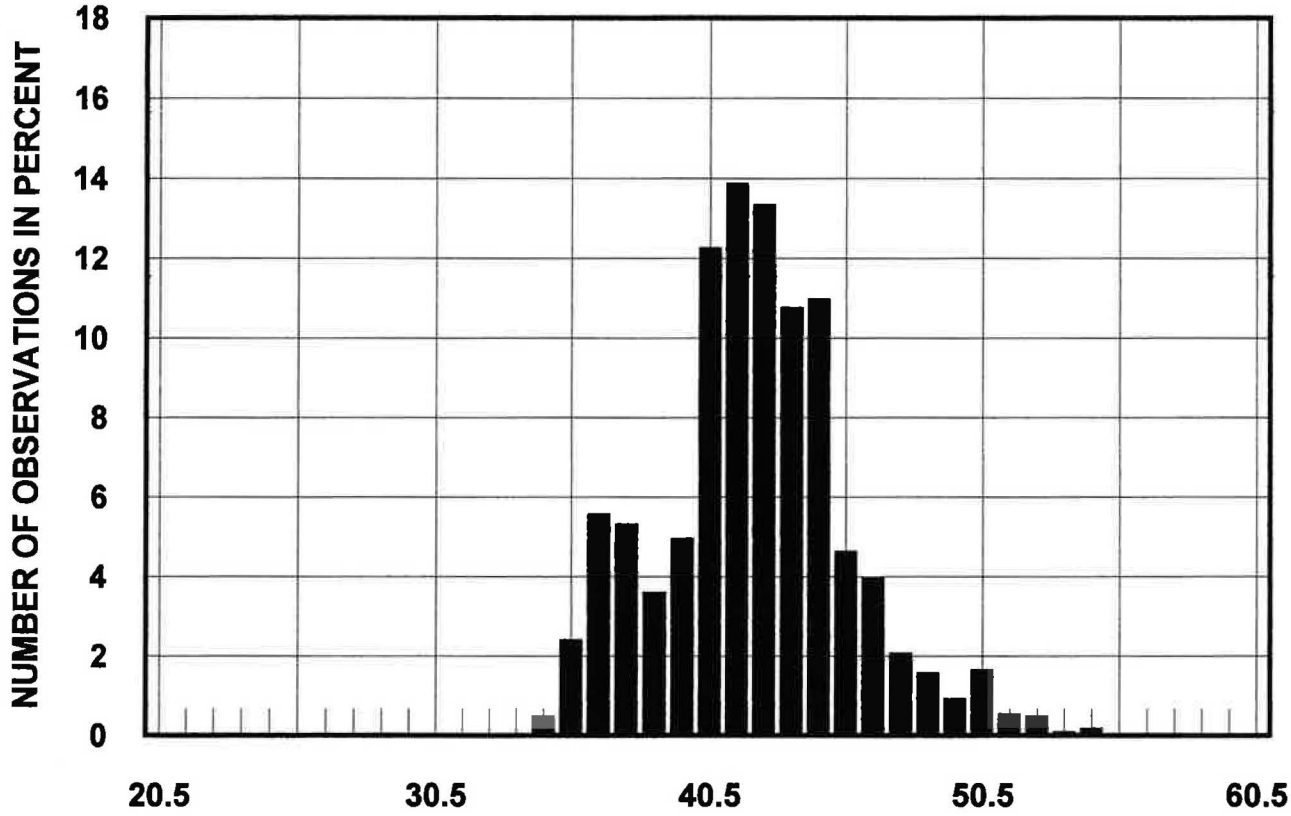
Calculations of existing traffic noise levels during the weekday PM peak traffic hours are presented in Table V-1. The hourly Leq (or Equivalent Sound Level) contribution from various roadway sections in the project environs were calculated for comparison with forecasted traffic noise levels with and without the project. The PM peak hour Leq's for a weekday were calculated using traffic data from Reference 7. The existing setback distances from the roadways' centerlines to their associated 65, 70, and 75 DNL contours were also calculated as shown in Table V-2. The contour line setback distances do not take into account noise shielding effects or the additive contributions of traffic noise from intersecting street sections. Based on the results of Table V-2, it was concluded that the existing 65 DNL traffic noise contour is located approximately 46 to 92 FT from the centerline of Wailea Ike Drive, and approximately 32 to 52 FT from the centerlines of Wailea Alanui Drive and Makena Alanui Drive.

Existing noise sensitive receptors in the project environs are probably not exposed to traffic noise levels of 65 DNL or higher in CY 2024. The existing background noise levels at noise sensitive receptors were probably in the Minimal to Moderate Exposure, Unconditionally Acceptable or Acceptable categories (see Table III-1). In the large project mauka areas designated for future residential use, existing background noise levels are relatively low because of the large setback distances from Makena Alanui Drive, and due to the undeveloped character of the land. Along the makai boundaries of the project area, existing background noise levels probably ranged from 45 to 65 DNL due to existing traffic along Makena Alanui Drive, existing residential activities, and due to the natural sounds associated with the surf along the shoreline.

Existing background noise levels at the planned residential units on the project

FIGURE V-1
HISTOGRAM OF MEASURED SOUND LEVELS AT MAKENA MAUKA; LOC G (PARSED)

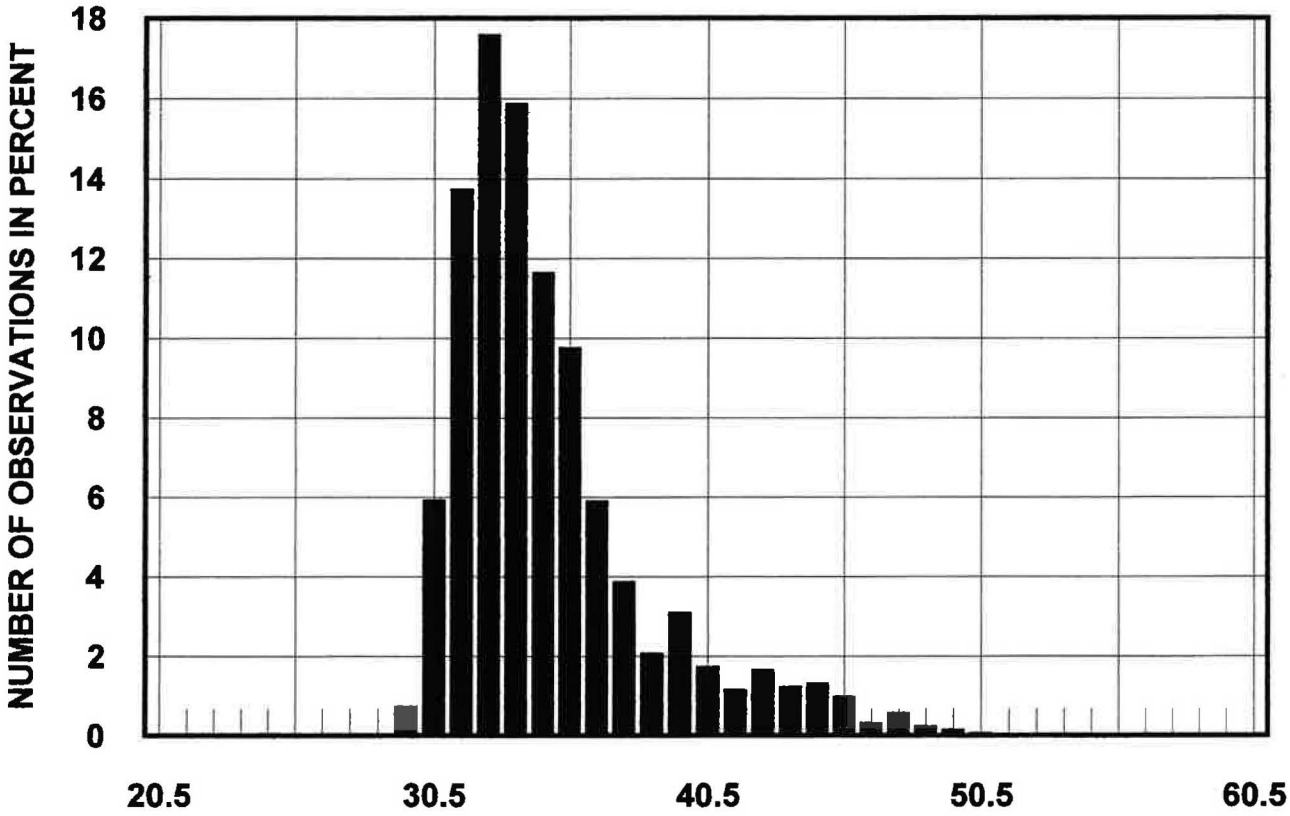
DATE: AUGUST 22, 2024
TIME: 1223 - 1243 HOURS
METER RESPONSE: LAEQ



Lmax:	54.5 dBA
L10:	46.4 dBA
L50:	42.1 dBA
Leq:	43.7 dBA
Lmin:	34.2 dBA

FIGURE V-2
HISTOGRAM OF MEASURED SOUND LEVELS AT MAKENA MAUKA; LOC H

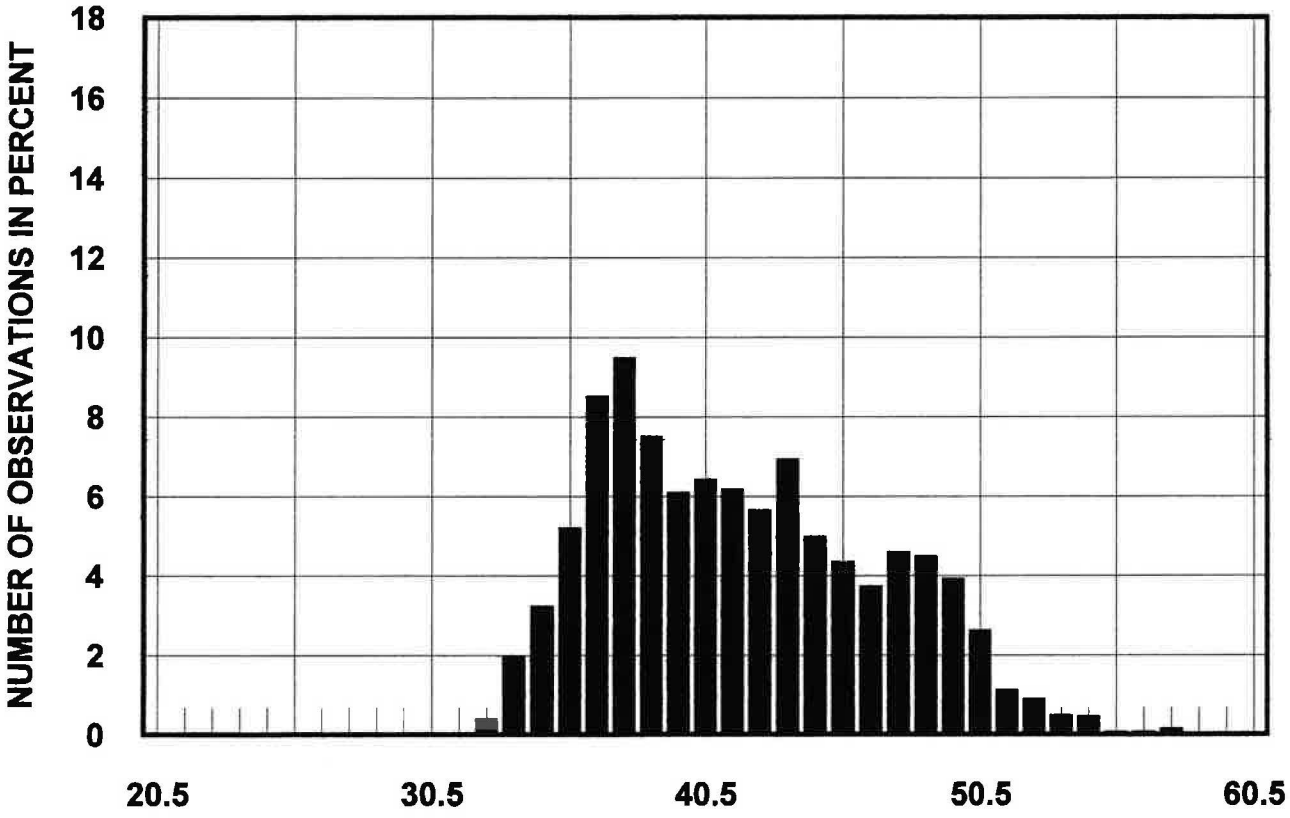
DATE: AUGUST 22, 2024
TIME: 1250 - 1310 HOURS
METER RESPONSE: LAEQ



Lmax:	50.3 dBA
L10:	39.9 dBA
L50:	33.7 dBA
Leq:	37.1 dBA
Lmin:	29.4 dBA

FIGURE V-3
HISTOGRAM OF MEASURED SOUND LEVELS AT MAKENA MAUKA; LOC J (PARSED)

DATE: AUGUST 22, 2024
TIME: 1319 - 1339 HOURS
METER RESPONSE: LAEQ



Lmax:	57.5 dBA
L10:	49.0 dBA
L50:	41.2 dBA
Leq:	44.9 dBA
Lmin:	32.6 dBA

TABLE V-1

EXISTING (CY 2024) TRAFFIC VOLUMES AND NOISE LEVELS ALONG ROADWAYS IN PROJECT AREA (PM PEAK HOUR)

LOCATION	SPEED (MPH)	TOTAL VPH	******** VOLUMES (VPH) ********** AUTOS	M TRUCKS	H TRUCKS	50' Leq	75' Leq	100' Leq
Piilani Hwy. Between Okolani and Wailea Ike	25NB/35SB	1,332	1,306	17	9	64.4	60.9	58.2
Wailea Ike Dr. West of Piilani Hwy.	30	1,330	1,304	17	9	64.4	61.1	58.4
Wailea Ike Dr. East of Wailea Alanui Dr.	32	1,098	1,045	26	27	*	68.2	63.6
Wailea Alanui Dr. S. of Okolani Dr.	31	871	845	19	7	63.1	60.0	57.6
Wailea Alanui Dr. N. of Wailea Ike Dr.	31	821	796	18	7	62.7	59.7	57.3
Wailea Alanui Dr. S. of Wailea Ike Dr.	34	1,237	1,205	25	7	66.0	63.5	61.9
Wailea Alanui Dr. N. of Kaukahi St.	37	705	691	13	1	64.3	61.8	60.1
Makena Alanui Dr. S. of Kaukahi St.	40	616	606	10	0	64.5	62.0	60.4
Makena Alanui Dr. N. of Wailea Golf Club Dr.	42	604	589	13	2	64.4	62.3	60.8
Makena Alanui Dr. S. of Wailea Golf Club Dr.	45	565	547	15	3	65.2	63.0	61.6
Makena Alanui Dr. N. of Makena Rd. North	47	561	540	17	4	66.0	63.7	62.1
Makena Alanui Dr. S. of Makena Rd. North	46	571	550	16	5	65.7	63.5	62.0
Makena Alanui Dr. N. of Makena Rd. South	46	501	483	13	5	65.1	62.9	61.5
Makena Alanui Dr. S. of Makena Rd. South	45	447	432	10	5	64.3	62.2	60.7
Makena Alanui Dr. N. of Project North Access	44	447	434	8	5	64.0	61.8	60.3
Project North Access E. of Makena Alanui Dr.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Makena Alanui Dr. S. of Project North Access	44	435	423	7	5	63.8	61.7	60.2
Makena Alanui Dr. N. of Honoiki St.	43	435	424	6	5	63.5	61.3	59.9
Makena Alanui Dr. S. of Honoiki St.	43	435	425	4	6	63.5	61.3	59.9
Makena Alanui Dr. N. of Makena Golf Course Dwy.	43	439	430	4	5	63.5	61.3	59.8
Makena Alanui Dr. S. of Makena Golf Course Dwy.	43	428	420	4	4	63.3	61.1	59.6
Makena Alanui Dr. N. of Makena Tennis Dwy.	43	371	365	4	2	62.5	60.3	58.8
Makena Alanui Dr. S. of Makena Tennis Dwy.	43	380	374	4	2	62.6	60.4	58.9

TABLE V-1 (CONTINUED)

EXISTING (CY 2024) TRAFFIC VOLUMES AND NOISE LEVELS ALONG ROADWAYS IN PROJECT AREA (PM PEAK HOUR)

LOCATION	SPEED (MPH)	TOTAL VPH	******** VOLUMES (VPH) ********** AUTOS	M TRUCKS	H TRUCKS	50' Leq	75' Leq	100' Leq
Makena Alanui Dr. N. of Makena Keonoio Rd.	41	348	343	4	1	61.5	59.3	57.9
Makena Alanui Dr. S. of Makena Keonoio Rd.	38	302	298	3	1	59.9	57.7	56.3
Makena Alanui Dr. N. of Future Project South Access	36	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Future Project South Access E. of Makena Alanui Dr.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Makena Alanui Dr. S. of Future Project South Access	33	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes:

1. All distances shown are from the center of roadways. Asterisk (*) indicates median is too wide to allow for calculation at 50 feet distance.
2. Calculated Leq's are for unobstructed line-of-sight conditions.
3. Used Loose Soil propagation loss assumption for Piilani Highway, Wailea Ike Drive, and Wailea Alanui Drive north of Wailea Ike Drive.
4. Used Hard Soil propagation loss assumption for Wailea Alanui Drive south of Wailea Ike Drive, and for all other roadways..
5. 25 Northbound / 35 Southbound speeds shown were used for Leq predictions for Piilani Highway between Okolani and Wailea Ike during the PM peak hour.

TABLE V-2

EXISTING AND CY 2058 DISTANCES TO 65, 70, AND 75 DNL CONTOURS

STREET SECTION	65 DNL SETBACK (FT)		70 DNL SETBACK (FT)		75 DNL SETBACK (FT)	
	EXISTING	CY 2058	EXISTING	CY 2058	EXISTING	CY 2058
Piilani Hwy. Between Okolani and Wailea Ike	49	95	27	54	15	29
Wailea Ike Dr. West of Piilani Hwy.	46	65	25	35	14	18
Wailea Ike Dr. East of Wailea Alanui Dr.	92	108	N/A	79	N/A	N/A
Wailea Alanui Dr. S. of Okolani Dr.	35	43	18	22	< 12	< 12
Wailea Alanui Dr. N. of Wailea Ike Dr.	33	42	17	21	< 12	< 12
Wailea Alanui Dr. S. of Wailea Ike Dr.	52	79	23	35	< 12	16
Wailea Alanui Dr. N. of Kaukahi St.	39	68	17	30	< 12	13
Makena Alanui Dr. S. of Kaukahi St.	40	84	18	37	< 12	16
Makena Alanui Dr. N. of Wailea Golf Club Dr.	38	91	15	35	< 12	13
Makena Alanui Dr. S. of Wailea Golf Club Dr.	45	108	18	41	< 12	16
Makena Alanui Dr. N. of Makena Rd. North	52	120	21	49	< 12	20
Makena Alanui Dr. S. of Makena Rd. North	49	117	20	46	< 12	18
Makena Alanui Dr. N. of Makena Rd. South	44	110	17	42	< 12	16
Makena Alanui Dr. S. of Makena Rd. South	37	100	14	38	< 12	15
Makena Alanui Dr. N. of Project North Access	36	94	14	37	< 12	15
Project North Access E. of Makena Alanui Dr.	N/A	< 12	N/A	< 12	N/A	< 12
Makena Alanui Dr. S. of Project North Access	34	83	13	33	< 12	13
Makena Alanui Dr. N. of Honoiki St.	33	78	13	30	< 12	< 12
Makena Alanui Dr. S. of Honoiki St.	33	70	13	28	< 12	< 12
Makena Alanui Dr. N. of Makena Golf Course Dwy.	33	68	13	27	< 12	< 12
Makena Alanui Dr. S. of Makena Golf Course Dwy.	32	64	13	25	< 12	< 12

TABLE V-2 (CONTINUED)

EXISTING AND CY 2058 DISTANCES TO 65, 70, AND 75 DNL CONTOURS

STREET SECTION	65 DNL SETBACK (FT)		70 DNL SETBACK (FT)		75 DNL SETBACK (FT)	
	EXISTING	CY 2058	EXISTING	CY 2058	EXISTING	CY 2058
Makena Alanui Dr. N. of Makena Tennis Dwy.	27	56	< 12	21	< 12	< 12
Makena Alanui Dr. S. of Makena Tennis Dwy.	28	53	< 12	21	< 12	< 12
Makena Alanui Dr. N. of Makena Keonoio Rd.	23	44	< 12	17	< 12	< 12
Makena Alanui Dr. S. of Makena Keonoio Rd.	17	33	< 12	13	< 12	< 12
Makena Alanui Dr. N. of Future Project South Access	N/A	29	N/A	< 12	N/A	< 12
Future Project South Access E. of Makena Alanui Dr.	N/A	< 12	N/A	< 12	N/A	< 12
Makena Alanui Dr. S. of Future Project South Access	N/A	21	N/A	< 12	N/A	< 12

Notes:

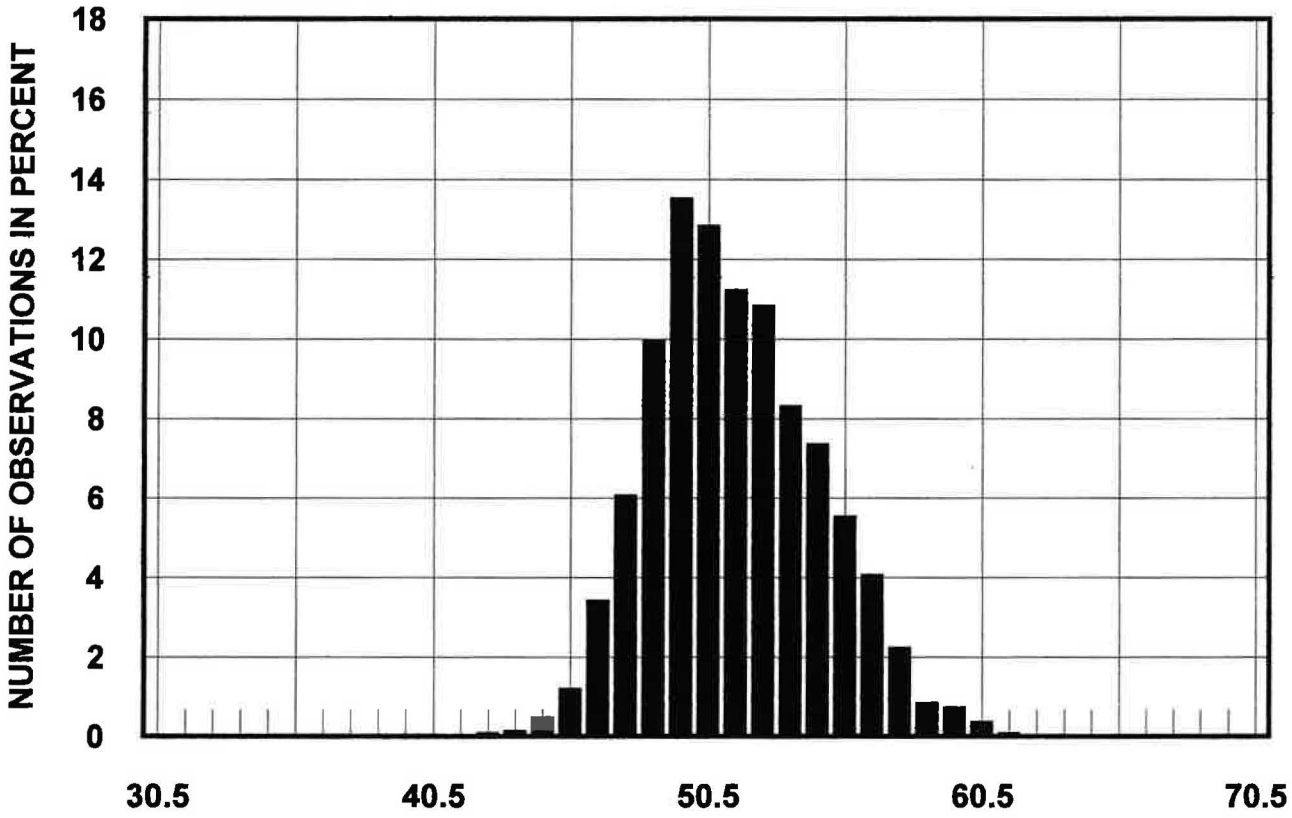
(1) All setback distances are from the roadways' centerlines.
(2) See Tables V-1 and VI-1 for traffic volume, speed, and mix assumptions.
(3) Setback distances are for ground level receptors.

M-2 and M-3 parcels fronting Makena Alanui Drive are currently exposed to traffic noise levels of approximately 63 DNL at 50 feet setback distance from the roadway's centerline. These parcels are the only project area which is planned for residential use at which future traffic noise levels could exceed the 65 DNL FHA/HUD threshold. At all other project lands planned for residential use, sufficient buffer distances appear to exist from Makena Alanui Drive and Makena Road.

At the south end of the project, where Makena Road approaches the shoreline, existing background noise levels are controlled by surf conditions, and were measured at Location A at 52.9 Leq, at approximately 102 FT from the roadway centerline and 240 FT from the rocky shoreline. A histogram of the measured sound levels at Location A is shown in Figure V-4. Traffic noise levels of the low speed vehicle passby events were estimated to be less than 50 Leq.

FIGURE V-4
HISTOGRAM OF MEASURED SOUND LEVELS AT MAKENA MAUKA; LOC A

DATE: AUGUST 20, 2024
TIME: 1104 - 1204 HOURS
METER RESPONSE: LAEQ



Lmax:	71.8 dBA
L10:	55.7 dBA
L50:	51.2 dBA
Leq:	52.9 dBA
Lmin:	42.6 dBA

CHAPTER VI. FUTURE NOISE ENVIRONMENT

Figure I-1 depicts the proposed Mâkena Mauka Land Use Plan, which includes the residential uses on the mauka side of Makena Alanui Drive and on the mauka side of Makena Road. The parcels identified with B-1, B-3, F-1, M, and S (excluding S-5) are those proposed for residential lots. The future traffic noise levels and potential traffic noise impacts associated with the proposed plan were examined by calculating future traffic noise levels in CY 2058; along Piilani Highway north of Wailea Ike Drive, along Wailea Ike Drive west of Piilani Highway and east of Wailea Alanui Drive, along Wailea Alanui Drive south of Okolani Drive and north of Kaukahi Street, and along Makena Alanui Drive south of Kuakahi Street; with the proposed plan. Future traffic noise levels under the Proposed Action and Do Nothing Alternatives were compared with each other as well as with the existing traffic noise levels described in the previous chapter.

Predictions of future traffic noise levels were made using the traffic volume assignments of Reference 7 for CY 2058 with and without the Proposed Action. The future assignments of project plus non-project traffic on the roadway sections which would service the project are shown in Table VI-1 for the weekday PM peak hour of traffic. Table VI-2 provides the predicted changes in future traffic noise levels along these roadways which are attributable to non-project and project traffic. As indicated in Table VI-2, by CY 2058 and following completion of the Proposed Action, traffic noise levels along Makena Alanui Drive in the project environs are predicted to increase by 3.5 to 5.1 DNL, with 3.17 to 4.2 DNL increase attributable to non-project traffic, and 0.4 to 1.2 DNL attributable to project traffic. Along the other roadway sections shown in Table VI-2, future traffic noise level increases attributable to the project were similar and ranged from 0.3 to 0.9 DNL.

Table IV-2 presents the future setback distances to the 65 DNL traffic noise contours for receptors with unobstructed fields of view to the traffic lanes. Based on the setback distances shown in Table IV-2, the northernmost building of the existing Makalii development is predicted to be located within the Year 2058 65 DNL traffic noise contour. While existing Maui Meadows residences along Piilani Highway between Okolani Drive and Wailea Ike Drive are within the indicated 95 FT setback distance to the 65 DNL contour, the noise shielding effects of the highway cut in that area provides adequate noise shielding effects (see Reference 10), and the predicted increase in traffic noise by 2058 should not result in exceedances of the 65 DNL FHA/HUD standard at those residences.

On the M-2 and M-3 residential parcels shown in Figure I-1, minimum setback distances in the order of 83 to 94 FT of the residential buildings may be required to avoid encroaching into the 65 DNL contour (see Table V-2). A final determination of the required setback distances will depend upon the final grading plans of these parcels and the anticipated number of floors of the residential buildings fronting Makena Alanui Drive. On the S-6 single family residential parcel shown in Figure I-1, anticipated

TABLE VI-1

FUTURE (CY 2058) TRAFFIC VOLUMES AND NOISE LEVELS ALONG ROADWAYS NEAR INTERSECTIONS IN PROJECT AREA (PM PEAK HOUR, BUILD)

LOCATION	SPEED (MPH)	TOTAL VPH	****** VOLUMES (VPH) ******** AUTOS	M TRUCKS	H TRUCKS	50' Leq	75' Leq	100' Leq
Piilani Hwy. Between Okolani and Wailea Ike	37	3,257	3,192	42	23	70.2	67.0	64.1
Wailea Ike Dr. West of Piilani Hwy.	30	2,478	2,429	32	17	67.1	63.9	61.1
Wailea Ike Dr. East of Wailea Alanui Dr.	32	2,023	1,923	49	51	*	70.9	66.2
Wailea Alanui Dr. S. of Okolani Dr.	31	1,272	1,234	28	10	64.6	61.6	59.2
Wailea Alanui Dr. N. of Wailea Ike Dr.	31	1,227	1,190	27	10	64.5	61.5	59.0
Wailea Alanui Dr. S. of Wailea Ike Dr.	34	2,262	2,202	46	14	68.6	66.1	64.5
Wailea Alanui Dr. N. of Kaukahi St.	37	1,536	1,504	29	3	67.7	65.2	63.5
Makena Alanui Dr. S. of Kaukahi St.	40	1,691	1,662	29	0	68.9	66.4	64.8
Makena Alanui Dr. N. of Wailea Golf Club Dr.	42	1,699	1,657	37	5	68.9	66.8	65.3
Makena Alanui Dr. S. of Wailea Golf Club Dr.	45	1,638	1,586	43	9	69.8	67.7	66.2
Makena Alanui Dr. N. of Makena Rd. North	47	1,632	1,568	51	13	70.7	68.4	66.8
Makena Alanui Dr. S. of Makena Rd. North	46	1,659	1,599	46	14	70.3	68.1	66.6
Makena Alanui Dr. N. of Makena Rd. South	46	1,535	1,483	38	14	69.9	67.8	66.3
Makena Alanui Dr. S. of Makena Rd. South	45	1,467	1,420	32	15	69.4	67.3	65.8
Makena Alanui Dr. N. of Project North Access	44	1,457	1,413	28	16	69.1	66.9	65.5
Project North Access E. of Makena Alanui Dr.	35	192	192	0	0	56.4	54.3	52.8
Makena Alanui Dr. S. of Project North Access	44	1,265	1,230	20	15	68.5	66.3	64.8
Makena Alanui Dr. N. of Honoiki St.	43	1,267	1,236	16	15	68.1	66.0	64.5
Makena Alanui Dr. S. of Honoiki St.	43	1,111	1,086	11	14	67.6	65.4	63.9
Makena Alanui Dr. N. of Makena Golf Course Dwy.	43	1,105	1,082	11	12	67.5	65.3	63.8
Makena Alanui Dr. S. of Makena Golf Course Dwy.	43	1,039	1,019	11	9	67.1	64.9	63.5
Makena Alanui Dr. N. of Makena Tennis Dwy.	43	902	886	10	6	66.4	64.3	62.8
Makena Alanui Dr. S. of Makena Tennis Dwy.	43	862	850	9	3	66.1	63.9	62.4

TABLE VI-1 (CONTINUED)

FUTURE (CY 2058) TRAFFIC VOLUMES AND NOISE LEVELS ALONG ROADWAYS NEAR INTERSECTIONS IN PROJECT AREA (PM PEAK HOUR, BUILD)

LOCATION	SPEED (MPH)	TOTAL VPH	****** VOLUMES (VPH) ******** AUTOS	M TRUCKS	H TRUCKS	50' Leq	75' Leq	100' Leq
Makena Alanui Dr. N. of Makena Keonoio Rd.	41	805	794	9	2	65.1	63.0	61.5
Makena Alanui Dr. S. of Makena Keonoio Rd.	38	712	703	8	1	63.6	61.4	59.9
Makena Alanui Dr. N. of Future Project South Access	36	718	709	8	1	62.9	60.8	59.3
Future Project South Access E. of Makena Alanui Dr.	35	88	88	0	0	53.1	50.9	49.4
Makena Alanui Dr. S. of Future Project South Access	33	630	622	8	0	61.2	59.1	57.6

Notes:

1. All distances shown are from the center of roadways. Asterisk (*) indicates median is too wide to allow for calculation at 50 feet distance.
2. Calculated Leq's are for unobstructed line-of-sight conditions.
3. Used Loose Soil propagation loss assumption for Piilani Highway, Wailea Ike Drive, and Wailea Alanui Drive north of Wailea Ike Drive.
4. Used Hard Soil propagation loss assumption for Wailea Alanui Drive south of Wailea Ike Drive, and for all other roadways..
5. 25 Northbound / 35 Southbound speeds shown were used for Leq predictions for Piilani Highway between Okolani and Wailea Ike during the PM peak hour.

TABLE VI-2

CALCULATIONS OF PROJECT AND NON-PROJECT TRAFFIC NOISE CONTRIBUTIONS (CY 2058) (PM PEAK HOUR LEQ OR DNL)

STREET SECTION	NOISE LEVEL INCREASE DUE TO NON-PROJECT TRAFFIC	PROJECT TRAFFIC
Piilani Hwy. Between Okolani and Wailea Ike	5.2	0.9
Wailea Ike Dr. West of Piilani Hwy.	2.5	0.3
Wailea Ike Dr. East of Wailea Alanui Dr.	2.3	0.4
Wailea Alanui Dr. S. of Okolani Dr.	1.2	0.4
Wailea Alanui Dr. N. of Wailea Ike Dr.	1.4	0.4
Wailea Alanui Dr. S. of Wailea Ike Dr.	2.1	0.5
Wailea Alanui Dr. N. of Kaukahi St.	2.6	0.8
Makena Alanui Dr. S. of Kaukahi St.	3.6	0.8
Makena Alanui Dr. N. of Wailea Golf Club Dr.	3.3	1.2
Makena Alanui Dr. S. of Wailea Golf Club Dr.	3.5	1.2
Makena Alanui Dr. N. of Makena Rd. North	3.8	0.9
Makena Alanui Dr. S. of Makena Rd. North	3.7	0.9
Makena Alanui Dr. N. of Makena Rd. South	3.8	1.1
Makena Alanui Dr. S. of Makena Rd. South	3.9	1.2
Makena Alanui Dr. N. of Project North Access	4.0	1.1
Project North Access E. of Makena Alanui Dr.	N/A	56.4
Makena Alanui Dr. S. of Project North Access	4.1	0.5
Makena Alanui Dr. N. of Honoiki St.	4.2	0.5
Makena Alanui Dr. S. of Honoiki St.	3.4	0.7
Makena Alanui Dr. N. of Makena Golf Course Dwy.	3.3	0.7
Makena Alanui Dr. S. of Makena Golf Course Dwy.	3.3	0.5
Makena Alanui Dr. N. of Makena Tennis Dwy.	3.3	0.7
Makena Alanui Dr. S. of Makena Tennis Dwy.	3.1	0.4
Makena Alanui Dr. N. of Makena Keonoio Rd.	3.2	0.5
Makena Alanui Dr. S. of Makena Keonoio Rd.	3.2	0.5
Makena Alanui Dr. N. of Future Project South Access	N/A	62.9
Future Project South Access E. of Makena Alanui Dr.	N/A	53.1
Makena Alanui Dr. S. of Future Project South Access	N/A	61.2

minimum setback distance to the 65 DNL traffic noise contour is 21 FT from the Makena Road centerline, although traffic data for this area was not provided in Reference 7.

If adequate buffer distances from Makena Alanui Drive are not available between the future residences on parcel M-2 and M-3 and the roadway centerline, the use of a sound attenuating wall for single story buildings may be an appropriate noise mitigation measure. If adequate buffer distances are not available, and the residential buildings are taller than single story buildings, the use of closure and air conditioning will probably be required at the upper floors.

Future traffic noise levels at existing noise sensitive locations along Makena Alanui Drive in the project environs are not expected to exceed 65 DNL. The northernmost existing residents at Makalii located along Wailea Alanui Drive and north of Kaukahi Street are predicted to experience future traffic noise levels greater than 65 DNL as a result of future increases in both project and non-project traffic. Along public roadways, traffic noise mitigation measures implemented after the roadway is constructed is normally performed by the affected lot owner if the building permit was obtained after the roadway was constructed or last improved. When a roadway is first built or when its capacity is later increased, traffic noise mitigation measures at preexisting residences are considered for inclusion into the roadway construction project, so that the affected lot owner may not need to provide the traffic noise mitigation measure.

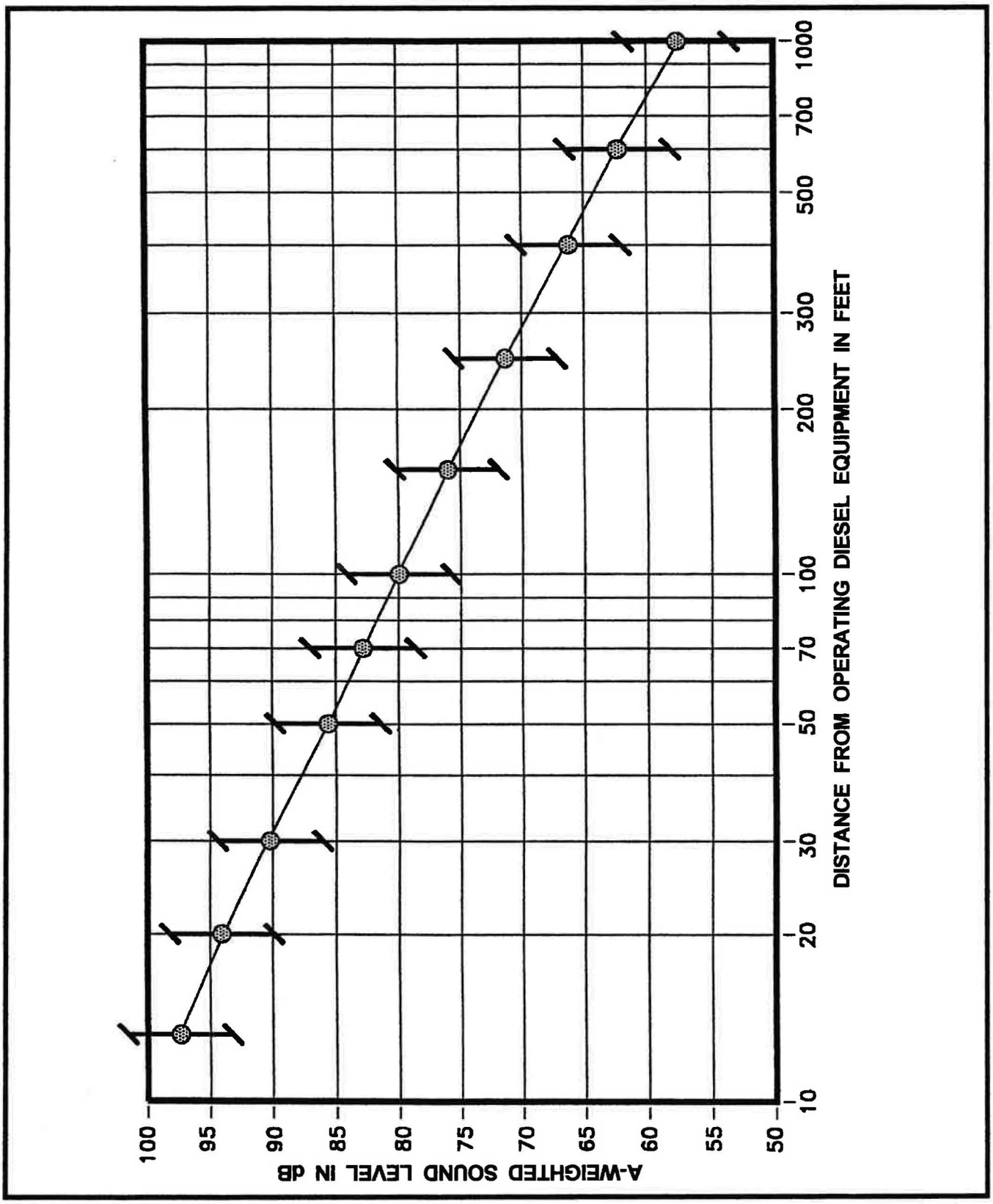
CHAPTER VII. CONSTRUCTION NOISE IMPACTS

Short-term noise impacts associated with construction activities anticipated in the project planning areas shown in Figure I-1 may occur on the mauka side of Makena Alanui Drive. The greatest impacts are expected during the earthwork and excavation phases, when site preparation work and/or roadway construction occur. Anticipated noise levels during construction activities of these types are shown in Figure VII-1. Noise levels of diesel powered construction equipment typically range from 80 to 90 dBA at 50 FT distance. The maximum impulsive noise levels of rock breaking equipment (such as hoe rams) can be 5 to 8 dBA greater than those shown in Figure VII-1. During the building erection phase, average construction noise levels are estimated to be 13 dB lower than those shown in Figure VII-1. The total duration of the construction period for the proposed project is not known, but noise exposure from construction activities at any one receptor location is not expected to be continuous during the total construction period.

Construction noise levels at the closest existing residences adjacent to the S-6 parcel may exceed 65 to 70 dBA when earthwork is being performed within 750 to 500 feet of the residence. These noise levels are expected to be intermittent and not continuous. These noise levels associated with construction are expected to be unavoidable at these buffer distances. The State Department of Health currently regulates noise from construction activities under a permit system (Reference 5). Under current permit procedures (see Figure VII-2), noisy construction activities are restricted to hours between 7:00 AM and 6:00 PM, from Monday through Friday, and exclude certain holidays. Noisy construction activities are normally restricted to the hours of 9:00 AM to 6:00 PM on Saturdays, with construction not permitted on Sundays. These restrictions minimize construction noise impacts on noise sensitive receptors (such as residences), and have generally been successfully applied. In this way, construction noise impacts on noise sensitive receptors can be minimized.

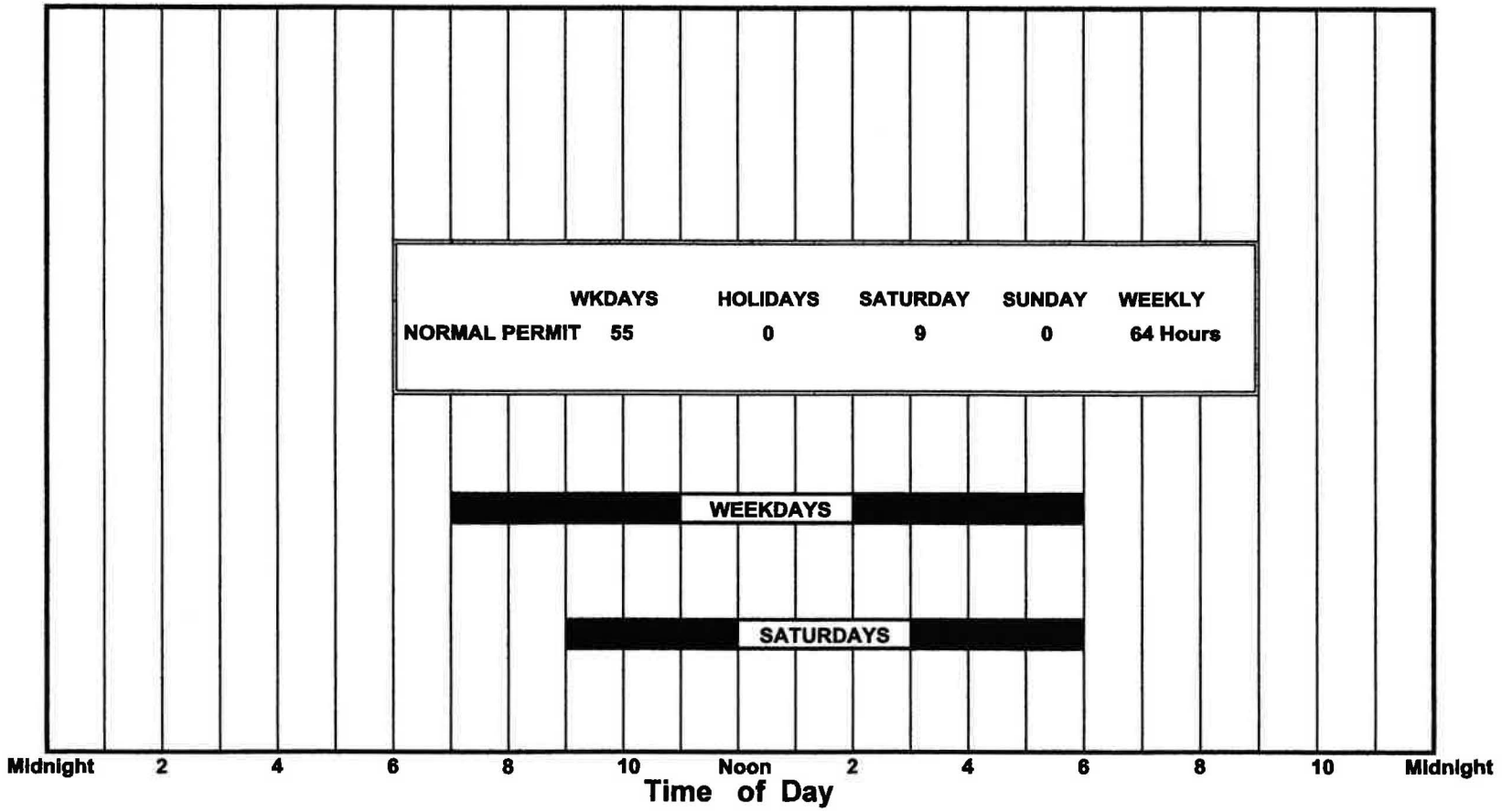
Adverse impacts from construction noise are not expected to be in the "public health and welfare" category due to the temporary nature of the work and due to the administrative controls available for its regulation. Instead, these impacts will probably be limited to the temporary degradation of the quality of the acoustic environment in the immediate vicinity of the project work areas.

In addition to the anticipated application of State DOH noise permit requirements and procedures during noisy construction activities, the use of quieted portable engine generators and diesel equipment should be specified for use within 500 FT of noise sensitive properties. Heavy truck and equipment staging areas should also be located at areas which are at least 500 FT from noise sensitive properties whenever possible. Truck routes which avoid residential communities should be identified wherever possible.



ANTICIPATED RANGE OF CONSTRUCTION NOISE LEVELS VS. DISTANCE

FIGURE VII-1



AVAILABLE WORK HOURS UNDER DOH PERMIT PROCEDURES FOR CONSTRUCTION NOISE

FIGURE VII-2

CHAPTER VIII. CUMULATIVE AND SECONDARY NOISE IMPACTS

Future traffic noise impacts with the project in 2058 should be considered as cumulative; i.e., total impacts change with time and with the addition of existing plus both future project and non-project traffic. The traffic noise study identified Makalii as the only existing location where future traffic noise levels will probably exceed the 65 DNL noise impact criteria level as a result of both project and non-project traffic along Wailea Alanui Drive. From report Table V-2, the 65 DNL contour was predicted to increase from 39 feet to 68 feet from the centerline of Wailea Alanui Drive by CY 2058 following project buildout, which will place the northernmost Makalii building within the 65 DNL contour. From report Appendix C, the non-project traffic increase of 583 vph and project traffic increase of 248 vph, singly, could not place the Makalii building within the 65 DNL traffic noise contour, since from report Table V-1, 705 vph of existing traffic along Wailea Alanui Drive does not cause the existing 65 DNL traffic noise contour to enclose the Makalii building of interest. By CY 2058, without the project, the forecasted total non-project traffic of 1,288 vph is predicted to place the Makalii building within the 65 DNL traffic noise contour. By CY 2058, without the 705 vph growth of non-project traffic, project traffic should not place the Makalii building within the 65 DNL traffic noise contour. So, the cumulative effects of existing, plus future non-project traffic will result in the exceedance of the 65 DNL noise impact criteria at Makalii. Stated in another way, if project buildout was to occur with the near future, the Makalii building should remain outside the 65 DNL traffic noise contour. Unfortunately, these cumulative traffic noise impacts are not preventable unless traffic noise mitigation measures (such as adequate setback distances from Wailea Alanui Drive and/or air conditioning of the building) have been or could be built into the Makalii residential units.

Construction noise impacts could be considered as secondary impacts over which the developer has some control. Some of these noise impacts are unavoidable, and recognizing this, the State DOH regulates construction noise separately using a noise permit and noise curfew system.

The potential traffic noise impacts on future project residences along Makena Alanui Drive at parcels M-2 and M-3 may be candidates for examples of secondary noise impacts over which the developer may have some control. Possible traffic noise mitigation measures are discussed in report Chapter VI. There are probably other many secondary traffic noise impacts along all public roadways identified in the TIAR where future project traffic is non-zero, and where the future 65 DNL traffic noise contours will grow in size in accordance with report Table V-2.

CHAPTER IX. NOISE STUDY CONCLUSIONS

Existing noise sensitive receptors in the project environs were probably not exposed to traffic noise levels which exceed the Normally Acceptable level of 65 DNL in 2024. The existing background noise levels at noise sensitive receptors were probably in the Minimal to Moderate Exposure, Unconditionally Acceptable or Acceptable categories. In the large project mauka areas designated for future residential use, existing background noise levels are relatively low because of the large setback distances from Makena Alanui Drive, and due to the undeveloped character of the land. Along the makai boundaries of the project area, existing background noise levels probably ranged from 45 to 65 DNL due to existing traffic along Makena Alanui Drive, existing residential activities, and due to the natural sounds associated with the surf along the shoreline.

Future traffic noise levels at existing noise sensitive locations along Makena Alanui Drive in the project environs are not expected to exceed 65 DNL. Only the northernmost existing residents at Makalii located along Wailea Alanui Drive and north of Kaukahi Street are predicted to experience future traffic noise levels greater than 65 DNL as a result of future increases in both project and non-project traffic. At Makalii, exceedance of the 65 DNL threshold are predicted to occur by 2058 by non-project traffic, with or without the project. The cumulative effects of existing, plus future non-project, plus future project generated traffic will be the cause of the exceedance of the 65 DNL noise impact criteria at Makalii. Unfortunately, these cumulative traffic noise impacts are not preventable unless traffic noise mitigation measures have been or could be built into the Makalii residential units.

APPENDIX A. REFERENCES

(1) "Guidelines for Considering Noise in Land Use Planning and Control;" Federal Interagency Committee on Urban Noise; June 1980.

(2) American National Standard, "Sound Level Descriptors for Determination of Compatible Land Use," ANSI S12.9-1998/ Part 5; Acoustical Society of America.

(3) "Environmental Criteria and Standards, Noise Abatement and Control, 24 CFR, Part 51, Subpart B;" U.S. Department of Housing and Urban Development; July 12, 1979.

(4) "Information on Levels of Environmental Noise Requisite to Protect the Public Health and Welfare with an Adequate Margin of Safety;" U.S. Environmental Protection Agency; EPA 550/9-74-004; March 1974.

(5) "Title 11, Administrative Rules, Chapter 46, Community Noise Control;" Hawaii State Department of Health; September 23, 1996.

(6) "FHWA Highway Traffic Noise Model User's Guide;" FHWA-PD-96-009, Federal Highway Administration; Washington, D.C.; January 1998 and Version 2.5 Upgrade (April 14, 2004).

(7) Mâkena Mauka Traffic Impact Analysis Report (Draft); SSFM International; March, 2025.

(8) 24-Hour Traffic Counts, Station B7431500082, Wailea Alanui Drive Between Malukai Lane and Hale Alii Place; State Department of Transportation; December 12, 2023.

(9) 24-Hour Traffic Counts, Station B74313700048, Wailea Ike Drive Between Wailea Alanui Drive and Wailea Ike Place; State Department of Transportation; December 13, 2023.

(10) Acoustic Study for the Piilani Highway Widening, Kilohana Drive to Wailea Ike Drive, Wailea, Maui; Y. Ebisu & Associates; November 2023.

APPENDIX B

EXCERPTS FROM EPA'S ACOUSTIC TERMINOLOGY GUIDE

Descriptor Symbol Usage

The recommended symbols for the commonly used acoustic descriptors based on A-weighting are contained in Table I. As most acoustic criteria and standards used by EPA are derived from the A-weighted sound level, almost all descriptor symbol usage guidance is contained in Table I.

Since acoustic nomenclature includes weighting networks other than "A" and measurements other than pressure, an expansion of Table I was developed (Table II). The group adopted the ANSI descriptor-symbol scheme which is structured into three stages. The first stage indicates that the descriptor is a level (i.e., based upon the logarithm of a ratio), the second stage indicates the type of quantity (power, pressure, or sound exposure), and the third stage indicates the weighting network (A, B, C, D, E.....). If no weighting network is specified, "A" weighting is understood. Exceptions are the A-weighted sound level and the A-weighted peak sound level which require that the "A" be specified. For convenience in those situations in which an A-weighted descriptor is being compared to that of another weighting, the alternative column in Table II permits the inclusion of the "A". For example, a report on blast noise might wish to contrast the LCdn with the LAdn.

Although not included in the tables, it is also recommended that "Lpn" and "LepN" be used as symbols for perceived noise levels and effective perceived noise levels, respectively.

It is recommended that in their initial use within a report, such terms be written in full, rather than abbreviated. An example of preferred usage is as follows:

The A-weighted sound level (LA) was measured before and after the installation of acoustical treatment. The measured LA values were 85 and 75 dB respectively.

Descriptor Nomenclature

With regard to energy averaging over time, the term "average" should be discouraged in favor of the term "equivalent". Hence, Leq, is designated the "equivalent sound level". For Ld, Ln, and Ldn, "equivalent" need not be stated since the concept of day, night, or day-night averaging is by definition understood. Therefore, the designations are "day sound level", "night sound level", and "day-night sound level", respectively.

The peak sound level is the logarithmic ratio of peak sound pressure to a reference pressure and not the maximum root mean square pressure. While the latter is the maximum sound pressure level, it is often incorrectly labelled peak. In that sound level meters have "peak" settings, this distinction is most important.

"Background ambient" should be used in lieu of "background", "ambient", "residual", or "indigenous" to describe the level characteristics of the general background noise due to the contribution of many unidentifiable noise sources near and far.

With regard to units, it is recommended that the unit decibel (abbreviated dB) be used without modification. Hence, DBA, PNdB, and EPNdB are not to be used. Examples of this preferred usage are: the Perceived Noise Level (Lpn was found to be 75 dB. Lpn = 75 dB). This decision was based upon the recommendation of the National Bureau of Standards, and the policies of ANSI and the Acoustical Society of America, all of which disallow any modification of bel except for prefixes indicating its multiples or submultiples (e.g., deci).

Noise Impact

In discussing noise impact, it is recommended that "Level Weighted Population" (LWP) replace "Equivalent Noise Impact" (ENI). The term "Relative Change of Impact" (RCI) shall be used for comparing the relative differences in LWP between two alternatives.

Further, when appropriate, "Noise Impact Index" (NII) and "Population Weighed Loss of Hearing" (PHL) shall be used consistent with CHABA Working Group 69 Report Guidelines for Preparing Environmental Impact Statements (1977).

APPENDIX B (CONTINUED)

TABLE I

A-WEIGHTED RECOMMENDED DESCRIPTOR LIST

	TERM	SYMBOL
1.	A-Weighted Sound Level	L_A
2.	A-Weighted Sound Power Level	L_{WA}
3.	Maximum A-Weighted Sound Level	L_{max}
4.	Peak A-Weighted Sound Level	L_{Apk}
5.	Level Exceeded x% of the Time	L_x
6.	Equivalent Sound Level	L_{eq}
7.	Equivalent Sound Level Over Time (T) (1)	$L_{eq(T)}$
8.	Day Sound Level	L_d
9.	Night Sound Level	L_n
10.	Day-Night Sound Level	L_{dn}
11.	Yearly Day-Night Sound Level	$L_{dn(Y)}$
12.	Sound Exposure Level	L_{SE}

(1) Unless otherwise specified, time is in hours (e.g. the hourly equivalent level is $L_{eq(1)}$). Time may be specified in non-quantitative terms (e.g., could be speficied as $L_{eq(WASH)}$ to mean the washing cycle noise for a washing machine).

SOURCE: EPA ACCOUSTIC TERMINOLOGY GUIDE, BNA 8-14-78, NOISE REGULATION REPORTER.

APPENDIX B (CONTINUED)

TABLE II

RECOMMENDED DESCRIPTOR LIST

	TERM	A-WEIGHTING	ALTERNATIVE[1] A-WEIGHTING	OTHER[2] WEIGHTING	UNWEIGHTED
1.	Sound (Pressure)[3] Level	L_A	L_{pA}	L_B, L_{pB}	L_p
2.	Sound Power Level	L_{WA}		L_{WB}	L_W
3.	Max. Sound Level	L_{max}	L_{Amax}	L_{Bmax}	L_{pmax}
4.	Peak Sound (Pressure) Level	L_{Apk}		L_{Bpk}	L_{pk}
5.	Level Exceeded x% of the Time	L_x	L_{Ax}	L_{Bx}	L_{px}
6.	Equivalent Sound Level	L_{eq}	L_{Aeq}	L_{Beq}	L_{peq}
7.	Equivalent Sound Level[4] Over Time(T)	$L_{eq(T)}$	$L_{Aeq(T)}$	$L_{Beq(T)}$	$L_{peq(T)}$
8.	Day Sound Level	L_d	L_{Ad}	L_{Bd}	L_{pd}
9.	Night Sound Level	L_n	L_{An}	L_{Bn}	L_{pn}
10.	Day-Night Sound Level	L_{dn}	L_{Adn}	L_{Bdn}	L_{pdn}
11.	Yearly Day-Night Sound Level	$L_{dn(Y)}$	$L_{Adn(Y)}$	$L_{Bdn(Y)}$	$L_{pdn(Y)}$
12.	Sound Exposure Level	L_S	L_{SA}	L_{SB}	L_{Sp}
13.	Energy Average Value Over (Non-Time Domain) Set of Observations	$L_{eq(e)}$	$L_{Aeq(e)}$	$L_{Beq(e)}$	$L_{peq(e)}$
14.	Level Exceeded x% of the Total Set of (Non-Time Domain) Observations	$L_{x(e)}$	$L_{Ax(e)}$	$L_{Bx(e)}$	$L_{px(e)}$
15.	Average L_x Value	L_x	L_{Ax}	L_{Bx}	L_{px}

(1) "Alternative" symbols may be used to assure clarity or consistency.

(2) Only B-weighting shown. Applies also to C,D,E,.....weighting.

(3) The term "pressure" is used only for the unweighted level.

(4) Unless otherwise specified, time is in hours (e.g., the hourly equivalent level is Leq(1). Time may be specified in non-quantitative terms (e.g., could be specified as Leq(WASH) to mean the washing cycle noise for a washing machine.

APPENDIX C

SUMMARY OF EXISTING AND FUTURE YEAR TRAFFIC VOLUMES ALONG PROJECT ROADWAYS

ROADWAY LANES	****** CY 2024 **** AM VPH	PM VPH	** CY 2058 (NO BUILD) ** AM VPH	PM VPH	*** CY 2058 (BUILD) **** AM VPH	PM VPH
Piilani Hwy. Between Okolani and Wailea Ike (NB)	231	789	851	1,692	903	1,761
Piilani Hwy. Between Okolani and Wailea Ike (SB)	711	543	1,277	1,421	1,326	1,496
Two-Way	942	1,332	2,127	3,112	2,229	3,257
Wailea Ike Dr. West of Piilani Hwy. (EB)	232	785	465	1,373	517	1,443
Wailea Ike Dr. West of Piilani Hwy. (WB)	704	545	1,184	960	1,234	1,035
Two-Way	936	1,330	1,649	2,333	1,751	2,478
Wailea Ike Dr. East of Wailea Alanui Dr. (EB)	215	641	371	1,093	423	1,163
Wailea Ike Dr. East of Wailea Alanui Dr. (WB)	520	457	909	785	958	860
Two-Way	735	1,098	1,280	1,878	1,381	2,023
Wailea Alanui Dr. S. of Okolani Dr. (NB)	185	496	311	638	359	687
Wailea Alanui Dr. S. of Okolani Dr. (SB)	470	375	565	530	601	585
Two-Way	655	871	876	1,168	960	1,272
Wailea Alanui Dr. N. of Wailea Ike Dr. (NB)	245	445	376	589	424	637
Wailea Alanui Dr. N. of Wailea Ike Dr. (SB)	379	376	473	536	508	590
Two-Way	624	821	849	1,125	932	1,227
Wailea Alanui Dr. S. of Wailea Ike Dr. (NB)	211	745	389	1,188	489	1,306
Wailea Alanui Dr. S. of Wailea Ike Dr. (SB)	650	492	1,024	827	1,108	956
Two-Way	861	1,237	1,413	2,015	1,597	2,262
Wailea Alanui Dr. N. of Kaukahi St. (NB)	125	443	259	773	360	891
Wailea Alanui Dr. N. of Kaukahi St. (SB)	321	262	596	515	681	645
Two-Way	446	705	855	1,288	1,041	1,536
Makena Alanui Dr. S. of Kaukahi St. (NB)	93	383	267	799	392	940
Makena Alanui Dr. S. of Kaukahi St. (SB)	255	233	544	588	652	751
Two-Way	348	616	811	1,387	1,044	1,691
Makena Alanui Dr. N. of Wailea Golf Club Dr. (NB)	95	372	274	801	399	943
Makena Alanui Dr. N. of Wailea Golf Club Dr. (SB)	253	232	557	503	666	756
Two-Way	348	604	831	1,304	1,065	1,699
Makena Alanui Dr. S. of Wailea Golf Club Dr. (NB)	86	359	257	781	385	925
Makena Alanui Dr. S. of Wailea Golf Club Dr. (SB)	236	206	531	459	641	713
Two-Way	322	565	788	1,240	1,026	1,638

APPENDIX C (CONTINUED)

SUMMARY OF EXISTING AND FUTURE YEAR TRAFFIC VOLUMES ALONG PROJECT ROADWAYS

ROADWAY LANES	****** CY 2024 **** AM VPH	PM VPH	** CY 2058 (NO BUILD) ** AM VPH	PM VPH	*** CY 2058 (BUILD) **** AM VPH	PM VPH
Makena Alanui Dr. N. of Makena Rd. North (NB)	83	356	252	777	380	921
Makena Alanui Dr. N. of Makena Rd. North (SB)	233	205	527	547	636	711
Two-Way	316	561	779	1,324	1,016	1,632
Makena Alanui Dr. S. of Makena Rd. North (NB)	84	360	254	781	388	930
Makena Alanui Dr. S. of Makena Rd. North (SB)	240	211	535	555	649	729
Two-Way	324	571	789	1,336	1,037	1,659
Makena Alanui Dr. N. of Makena Rd. South (NB)	76	315	237	704	371	853
Makena Alanui Dr. N. of Makena Rd. South (SB)	220	186	491	511	605	682
Two-Way	296	501	728	1,215	976	1,535
Makena Alanui Dr. S. of Makena Rd. South (NB)	63	282	215	652	365	811
Makena Alanui Dr. S. of Makena Rd. South (SB)	181	165	430	474	550	656
Two-Way	244	447	645	1,126	915	1,467
Makena Alanui Dr. N. of Project North Access (NB)	63	282	215	652	365	802
Makena Alanui Dr. N. of Project North Access (SB)	181	165	430	474	543	655
Two-Way	244	447	645	1,126	908	1,457
Project North Access E. of Makena Alanui Dr. (EB)	N/A	N/A	N/A	N/A	69	96
Project North Access E. of Makena Alanui Dr. (WB)	N/A	N/A	N/A	N/A	89	96
Two-Way	N/A	N/A	N/A	N/A	158	192
Makena Alanui Dr. S. of Project North Access (NB)	61	274	213	644	276	706
Makena Alanui Dr. S. of Project North Access (SB)	174	161	423	474	474	559
Two-Way	235	435	636	1,118	750	1,265
Makena Alanui Dr. N. of Honoiki St. (NB)	61	274	213	644	275	707
Makena Alanui Dr. N. of Honoiki St. (SB)	174	161	423	474	474	560
Two-Way	235	435	636	1,118	749	1,267
Makena Alanui Dr. S. of Honoiki St. (NB)	66	274	188	565	257	635
Makena Alanui Dr. S. of Honoiki St. (SB)	174	161	363	389	415	476
Two-Way	240	435	551	954	672	1,111
Makena Alanui Dr. N. of Makena Golf Course Dwy. (NB)	61	276	180	557	250	627
Makena Alanui Dr. N. of Makena Golf Course Dwy. (SB)	176	163	363	390	413	478
Two-Way	237	439	543	947	663	1,105

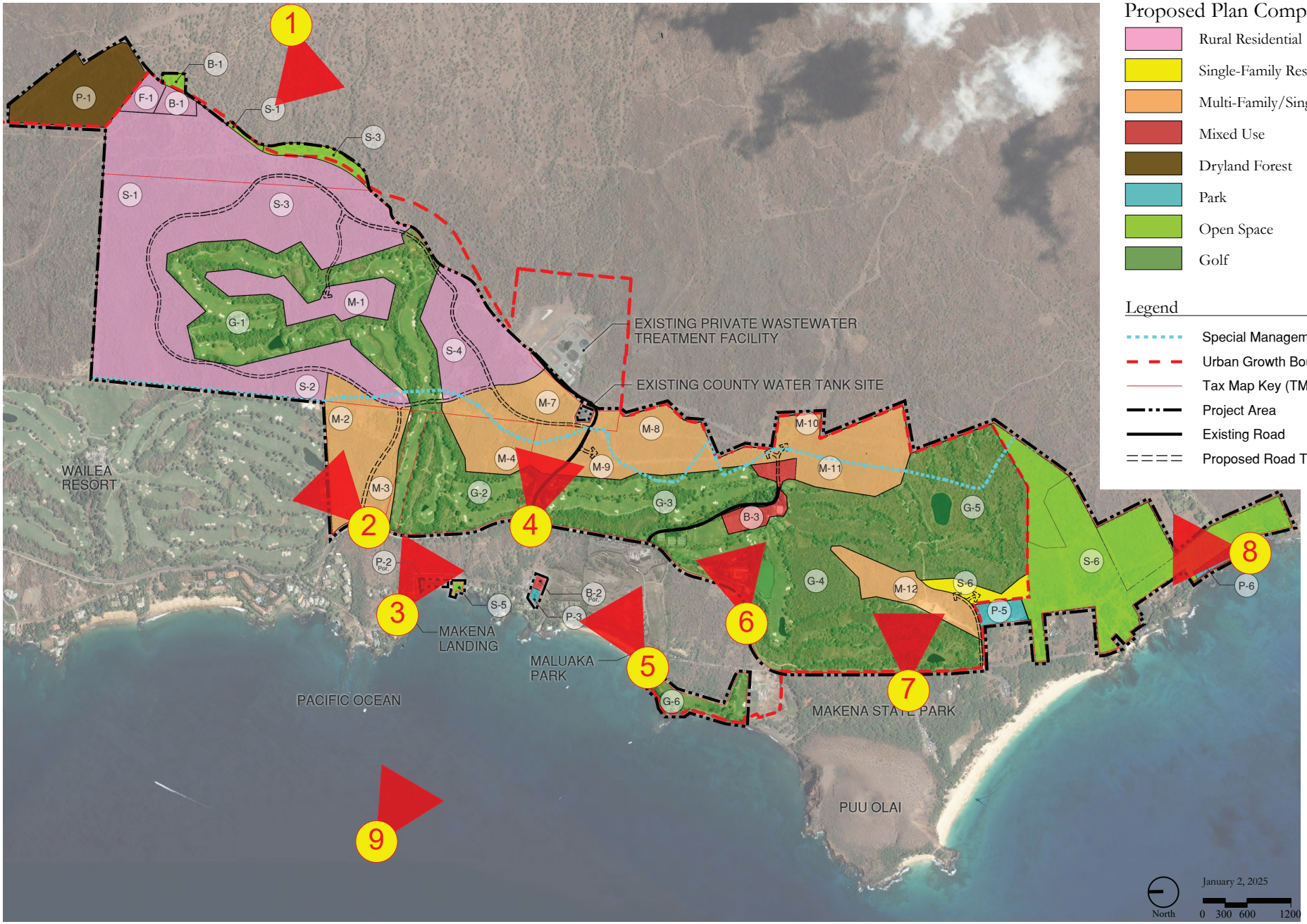
APPENDIX C (CONTINUED)

SUMMARY OF EXISTING AND FUTURE YEAR TRAFFIC VOLUMES ALONG PROJECT ROADWAYS

ROADWAY LANES	****** CY 2024 **** AM VPH	PM VPH	** CY 2058 (NO BUILD) ** AM VPH	PM VPH	*** CY 2058 (BUILD) **** AM VPH	PM VPH
Makena Alanui Dr. S. of Makena Golf Course Dwy. (NB)	56	257	169	523	221	575
Makena Alanui Dr. S. of Makena Golf Course Dwy. (SB)	171	171	352	397	390	464
Two-Way	227	428	521	920	611	1,039
Makena Alanui Dr. N. of Makena Tennis Dwy. (NB)	53	219	127	446	178	498
Makena Alanui Dr. N. of Makena Tennis Dwy. (SB)	152	152	309	338	347	404
Two-Way	205	371	436	784	525	902
Makena Alanui Dr. S. of Makena Tennis Dwy. (NB)	56	229	125	446	162	483
Makena Alanui Dr. S. of Makena Tennis Dwy. (SB)	136	151	283	336	308	379
Two-Way	192	380	408	782	470	862
Makena Alanui Dr. N. of Makena Keonoio Rd. (NB)	44	192	111	388	148	425
Makena Alanui Dr. N. of Makena Keonoio Rd. (SB)	127	156	256	337	282	380
Two-Way	171	348	367	725	430	805
Makena Alanui Dr. S. of Makena Keonoio Rd. (NB)	47	155	103	316	144	357
Makena Alanui Dr. S. of Makena Keonoio Rd. (SB)	98	147	195	309	223	355
Two-Way	145	302	298	625	367	712
Makena Alanui Dr. N. of Future Project South Access (NB)	N/A	N/A	N/A	N/A	146	360
Makena Alanui Dr. N. of Future Project South Access (SB)	N/A	N/A	N/A	N/A	225	358
Two-Way	N/A	N/A	N/A	N/A	371	718
Future Project South Access E. of Makena Alanui Dr. (EB)	N/A	N/A	N/A	N/A	27	46
Future Project South Access E. of Makena Alanui Dr. (WB)	N/A	N/A	N/A	N/A	41	42
Two-Way	N/A	N/A	N/A	N/A	68	88
Makena Alanui Dr. S. of Future Project South Access (NB)	N/A	N/A	N/A	N/A	105	318
Makena Alanui Dr. S. of Future Project South Access (SB)	N/A	N/A	N/A	N/A	198	312
Two-Way	N/A	N/A	N/A	N/A	303	630

APPENDIX R

VIEW ANALYSIS



Proposed Plan Components

- Rural Residential
- Single-Family Residential
- Multi-Family/Single-Family Residential
- Mixed Use
- Dryland Forest
- Park
- Open Space
- Golf

Legend

- Special Management Area Boundary
- Urban Growth Boundary
- Tax Map Key (TMK) Boundaries
- Project Area
- Existing Road
- Proposed Road To Be Determined

Draft EIS Land Plan

Makena Mauka

MĀKENA GOLF & BEACH CLUB

Discovery LAND COMPANY

VITA PLANNING | LANDSCAPE ARCHITECTURE | ARCHITECTURE

LOCATION 1

Proposed Rendering



As seen from this perspective looking makai from Kula Hwy near the Ulupalakua Ranch Store, there remain unobstructed views looking out onto the 'Alalakeiki Channel with Molokini and Kaho'olawe in the distance. The multi-family buildings are proposed to be 45' tall while the single-family buildings are proposed to include both one and two-story design. The visual impact of the proposed development is mitigated by their recessive earth-tone material palette and colors set amongst the landscape.

LOCATION 2

Proposed Rendering



The existing terrain of a gradual upslope ~10' from the entry drive along with existing landscaping of kiawe and monkeypod trees ranging from 15'-25' in height, prevent most of the mauka facing views of the slopes of Haleakala. The existing hale structure on the left measures 22' in height and is 100' from Makena Alanui. The proposed gathering pavilion towards the center of the rendering will be approximately 15' in height. Further up the entry driveway is the proposed workforce housing building which will be a two-story 30' high building. The new native species-dominant landscaping along both Makena Alanui and the entry drive will mitigate the visual impacts of the proposed structures and the workforce housing buildings.

LOCATION 3

Proposed Rendering



As seen from this rendering perspective from Makena Keonioio Road nearby to Makena Landing, the unobstructed mauka views to Haleakala remain intact. The visual impact of the taller multi-family buildings are mitigated by their recessive exterior colors and landscape. The proposed multi-family buildings are 45' tall and located above Makena Alanui and a portion of the North Golf Course. Their physical massing away from the ocean allows for a less impactful shoreline perspective that is in alignment with the Maui Island Plan. Single-family buildings, which are proposed to be one and two-stories tall, are located along the North Golf Course.

LOCATION 4

Proposed Rendering



As seen from this rendering perspective from Makena Alanui, Haleakala is not visible in the current location. The proposed greeter hale is 16' tall and is set back approximately 110' from Makena Alanui. 45' tall multi-family and one and two-story single-family buildings are nestled into the hillside along the left side of the entry drive. The visual impacts are mitigated with their recessive earth-toned exterior colors and materials. The entry drive landscaping will include a plant palette inclusive of native species that will surround the both the drive aisles and the greeter hale.

LOCATION 5

Proposed Rendering



As seen from this perspective looking mauka from Maluaka Beach Park, there remain unobstructed views of the slopes of Haleakala. The multi-family buildings are proposed to be 45' tall while the single-family buildings are proposed to include both one and two-story design. The visual impact of the proposed development is mitigated by their recessive earth-tone material palette and colors set amongst the landscape.

LOCATION 6

Proposed Rendering



As seen from this perspective looking mauka from Makena Alanui, there remain unobstructed views of the slopes of Haleakala. The multi-family buildings are proposed to be 45' tall. The proposed new sidewalk and landscaping are depicted here on the mauka side of Makena Alanui to offer a pedestrian-friendly connector route South towards Makena State Park. The visual impact of the proposed development is mitigated by the residential buildings' recessive earth-tone material palette and colors set amongst the landscape.

LOCATION 7

Proposed Rendering



As seen from this perspective looking mauka from Makena Road, no views of Haleakala are seen due to the existing kiawe-dominated landscape and the low angle of perspective. From this location towards the South end of the project directly across the first entrance to Makena State Park, no multi-family or single-family buildings can be seen. The proposed new sidewalk and landscaping are depicted here on the mauka side of Makena Alanui to offer a pedestrian friendly connector route south towards Makena State Park.

LOCATION 8

Proposed Rendering



As seen from this perspective looking mauka from Makena Road, no views of Haleakala are seen due to the existing kiawe-dominated landscape and the low angle of perspective. From this location at the south end of the project, no multi-family or single-family buildings can be seen.

LOCATION 9

Proposed Rendering



As seen from this perspective looking mauka from ocean directly seaward of the proposed project, there remain unobstructed views of the slopes of Haleakala. The multi-family buildings are proposed to be 45' tall while the single-family buildings are proposed to include both one and two-story design. The visual impact of the proposed development is mitigated by their recessive earth-tone material palette and colors set amongst the landscape.

APPENDIX S

CULTURAL IMPACT ASSESSMENT



Cultural Impact Assessment for the Proposed Mākena Mauka Project

Ahupuaʻa of Keauhou, Kalihi, Waipao, Pāpaʻanui, Kāʻeo, Maluaka, Mooiki, Mooloa, and Moomuku, in the moku of Honuaʻula, district of Makawao

TMKs: (2)2-1-005:108; (2)2-1-006:036; (2)2-1-006:057; (2)2-1-007:068; (2)2-1-007:092; (2)2-1-007:093; (2)2-1- 008:078; (2)2-1-008:079; (2)2-1-008:081; (2)2-1-008:090; (2)2-1-031:036 (por.)

Prepared for

AREG AC Mākena Propco LLC doing business as Mākena Golf & Beach Club Owners

Prepared by

HONUA CONSULTING

April 2025

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Note on Hawaiian language usage

In keeping with other Hawaiian scholars, we do not italicize Hawaiian words. Hawaiian is both the native language of the pae ʻāina of Hawaiʻi and an official language of the State of Hawaiʻi. Some authors will leave Hawaiian words italicized if part of a quote; we do not. In the narrative, we use diacritical markings to assist our readers, except in direct quotes, in which we keep the markings used in the original text. We provide translations contextually when appropriate.

Front Cover Credit

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Executive Summary

This Cultural Impact Assessment (CIA) was prepared by Honua Consulting, LLC for the proposed Mākena Mauka Project on behalf of AREG AC Mākena Propco, LLC, doing business as Mākena Golf & Beach Club Owners. The proposed project encompasses approximately 1,041.47 acres across the ahupuaʻa of Keauhou, Kalihi, Waipao, Pāpaʻanui, Kāʻeo, Maluaka, Mooiki, Mooloa, and Moomuku in the moku of Honuaʻula, South Maui. The project is a low-density, master-planned residential community that includes 652 housing units, infrastructure upgrades, recreational amenities, and areas designated for conservation and public beach access.

The assessment involved in-depth archival research, biological and archaeological studies, and interviews with cultural descendants and community practitioners. These efforts identified a broad range of tangible and intangible cultural resources, including wahi pana (storied places), historic trails, culturally significant flora and fauna, and practices related to fishing, limu gathering, lāʻau lapaʻau, kilo (environmental observation), and ceremonial traditions. Resources of specific concern include endemic species such as wiliwili, ʻōpeʻapeʻa, and limu varieties central to traditional diets and ceremonies.

Community interviews, particularly with kūpuna and descendants with multi-generational ties to the region, provided a critical lens for evaluating project impacts. Interviewees expressed deep concern over continued disruption of access to traditional gathering and fishing areas, the degradation of marine resources due to coastal development, and the potential erasure of cultural memory embedded in the land. Several noted the cumulative impacts of historical land dispossession and increasing tourism pressure, which have already strained practices such as subsistence fishing and lāʻau lapaʻau. Some resources and practices, such as lei-making, kilo, and ceremonial observation, depend on visual viewplanes and specific species.

The applicant has already implemented an extensive cultural and natural resource program that begins to redress some of the cumulative impacts identified by area descendants and kūpuna. These programs exist independently from this project but may be enhanced as part of the project mitigation.

This CIA finds that the project has the potential to cause significant adverse effects on cultural resources and practices, but these impacts are mitigable. The project will continue to refine mitigation strategies throughout the planning and entitlement processes. Some of these strategies include, but may not be limited to:

- Avoidance of known historic properties through project redesign, in coordination with SHPD;

- Preservation and restoration of native and culturally significant flora, including limu and wiliwili;
- Enhancement of public access to shoreline areas used for cultural fishing and gathering;
- Enhancement of cultural stewardship programming that integrates descendant and practitioner input;
- Enhancement of interpretive signage and traditional ecological education tied to site-specific moʻolelo.

The integrity of cultural practices relies on the continued availability of sites and species, many of which fall within or adjacent to the project boundaries. While HRS Chapter 6E and HAR §13-284 will guide formal consultation and archaeological review, it is recommended that the project's entitlements include enforceable cultural resource protection plans developed in partnership with Native Hawaiian stakeholders.

This report affirms that cultural practice in Honuaʻula is a living, evolving continuum. As such, protection of access and descendant engagement will not only serve as mitigation but also implement constitutional protections for Native Hawaiian traditional and customary rights.

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Acronyms and Abbreviations

A.B.C.F.M.: American Board of Commissioners for Foreign Missions
BMP: Best Management Practice
CIA: Cultural Impact Assessment
DLNR: Department of Land and Natural Resources
EIS: Environmental Impact Statement
ERP: Environmental Review Program
GPD: Gallons Per Day
GPM: Gallons Per Minute
HAR: Hawaii Administrative Rules
HOA: Homeowners Association
HRS: Hawaii Revised Statutes
HSA: Hawaii State Archives
ICH: Intangible Cultural Heritage
LCA: Land Commission Award
MAGIS: Maps Aerial Photographs and GIS
Māhele: The Māhele ‘Āina of 1848
MDWS: Maui Department of Water Supply
MG/L: Milligrams Per Liter
ORS: Oneloa Restoration Stewardship
RO: Reverse Osmosis
SHPD: State Historic Preservation Division
TEK: Traditional Ecological Knowledge
TMK: Tax Map Key
UNESCO: The United Nations Educational, Scientific and Cultural Organization
USGS: The United States Geological Survey

1.0 Project Description

At the request of AREG AC Mākena Propco, LLC doing business as Mākena Golf & Beach Club Owners, Honua Consulting, LLC prepared a Cultural Impact Assessment (CIA) of the Proposed Mākena Mauka Project, Tax Map Keys (TMKs): (2)2-1-005:108; (2)2-1-006:036; (2)2-1-006:057; (2)2-1-007:068; (2)2-1-007:092; (2)2-1-007:093; (2)2-1-008:078; (2)2-1-008:079; (2)2-1-008:081; (2)2-1-008:090; (2)2-1-031:036 (por.). The project traverses the ahupuaʻa (land division usually extending from mauka (uplands) to makai (seaward)) of Keauhou, Kalihi, Waipao, Pāpaʻanui, Kāʻeo, Maluaka, Mooiki, Mooloa, and Moomuku in the moku (traditional land district) of Honuaʻula in South Maui.

The proposed project consists of the development of Mākena Mauka, a low-density master-planned residential community within the Makena area of South Maui[1]. Mākena Mauka will offer market rate housing combined with residential workforce housing, with a mixture of rural and single-family lots and multi-family residential units, within an area that has largely been planned for such uses for decades. The project will incorporate the existing 18-hole Mākena North Golf Course and the 18-hole Mākena South Golf Course (to be renovated as part of the land plan), together with a community gathering place, hiking trails, walking, bicycling, and golf cart paths, programs to support connectivity, beach parking areas for the public, areas reserved for conservation/open space, and areas reserved for public beach access. Access to the project area will be provided from Mākena Alanui Road with an internal roadway network connecting to the individual communities within the land plan. The Applicant's current vision for the Mākena Mauka land plan includes 652 housing units, 109 of which are onsite residential workforce housing units, and approximately 135,000 square feet of operational support buildings, including golf maintenance and operations, staff offices, restaurants, back of house, and other uses. The total project area is approximately 1,041.47 acres, which includes approximately 473 acres of parcels proposed for residential development. The Applicant is seeking to minimize environmental and cultural impacts by carefully inventorying the

[1] Descendants differ on the preferred modern spelling of Makena. Some prefer Makena without the kahakō, while others prefer it spelled Mākena with the kahakō. Before Western contact, Native Hawaiians preserved their rich cultural knowledge through an exclusively oral tradition. Knowledge transfer occurred through chants, genealogies, and stories passed down through generations by memory and precise verbal transmission. When American missionaries arrived in the 1820s, they developed a written Hawaiian alphabet, introducing diacritical marks to capture the language's unique sounds: the kahakō (macron) elongates vowels, while the ʻokina (glottal stop) represents a consonant sound. These marks assist in distinguishing between words with different meanings but similar spellings, but were omitted from early publications, resulting in ambiguity as to the traditional spelling of Makena. These distinctions are further discussed in Section 3.0. Proper names that use Mākena are left unchanged. kahooa

natural and cultural environment and avoiding any significant archaeological sites, cultural resources, and sensitive species.

1.1 Description of the Project Area

The project includes sections of multiple ahupuaʻa: Keauhou, Kalihi, Waipao, Pāpaʻanui, Kāʻeo, Maluaka, Mooiki, Mooloa, and Moomuku. It occurs exclusively in the moku of Honuaʻula and largely in the land area known as Mākena. While not an ahupuaʻa in its own right, Mākena (literally, "abundance") is widely known as a village and bay. The extent of the Project Area is provided in the following figures.

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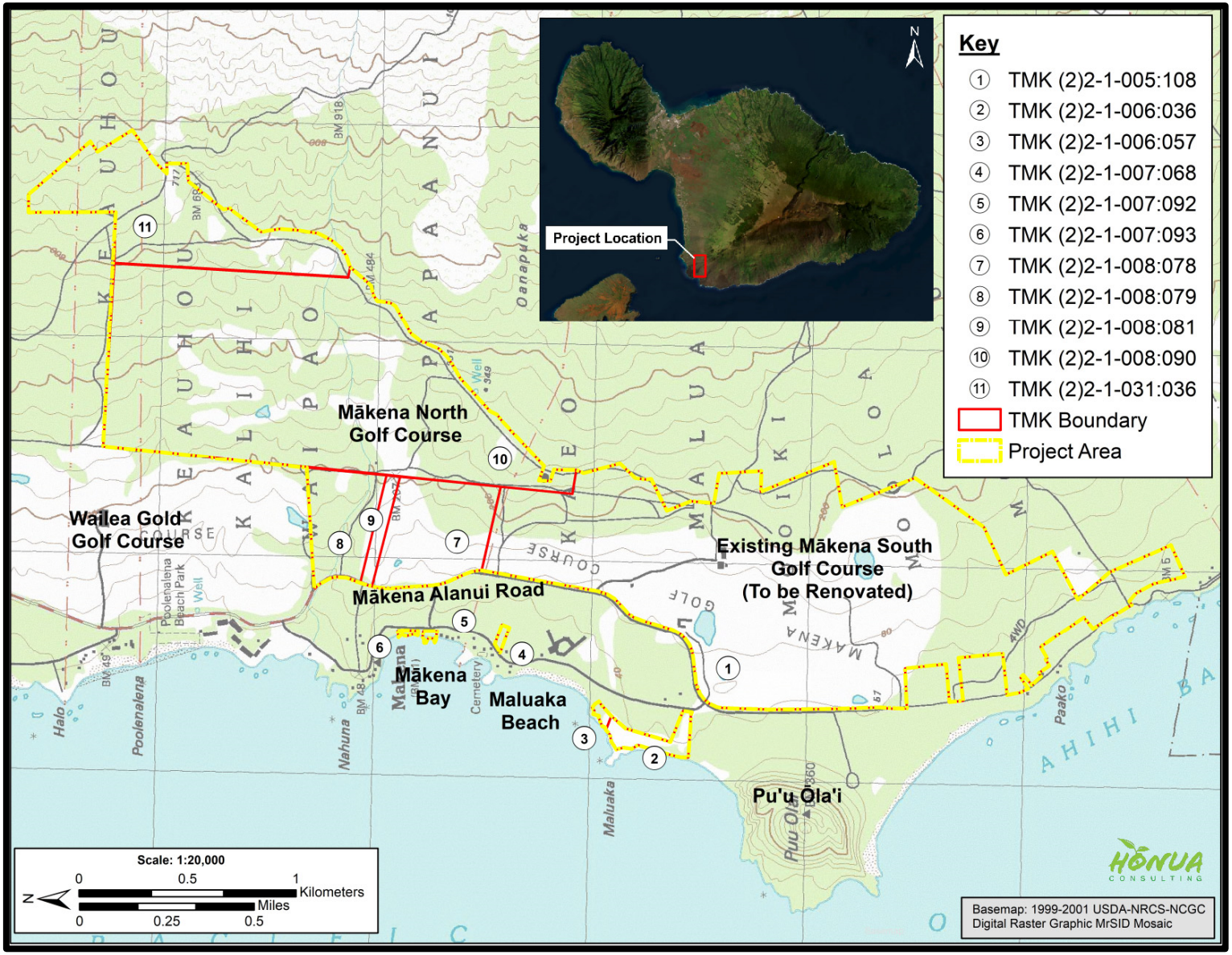

Figure 1. Project Area and TMK Boundaries on 1999-2001 USDA-NRCS-NCGC Regional Map (Honua Consulting)

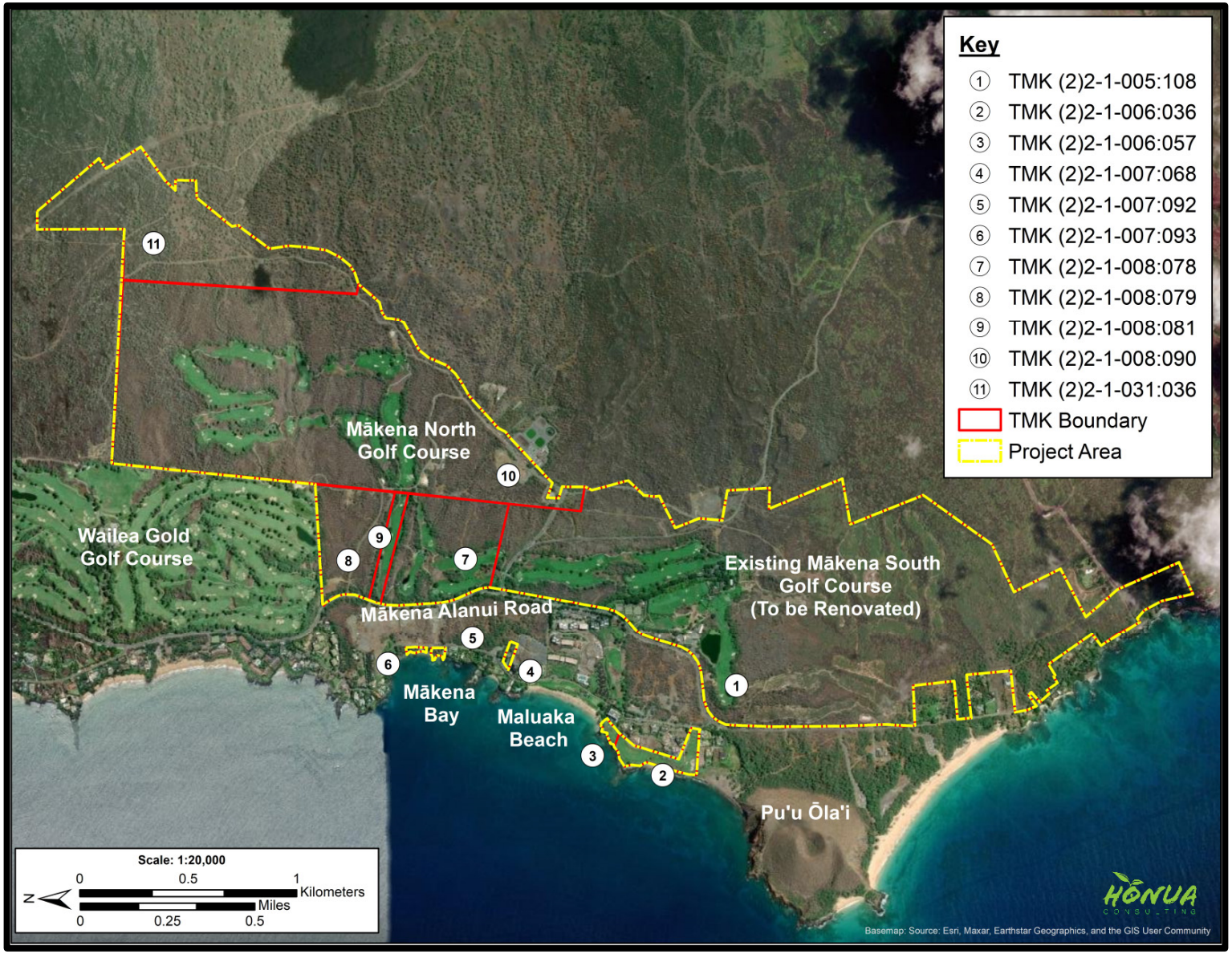

Figure 2. Project Area and TMK Boundaries on Aerial Map (Honua Consulting)

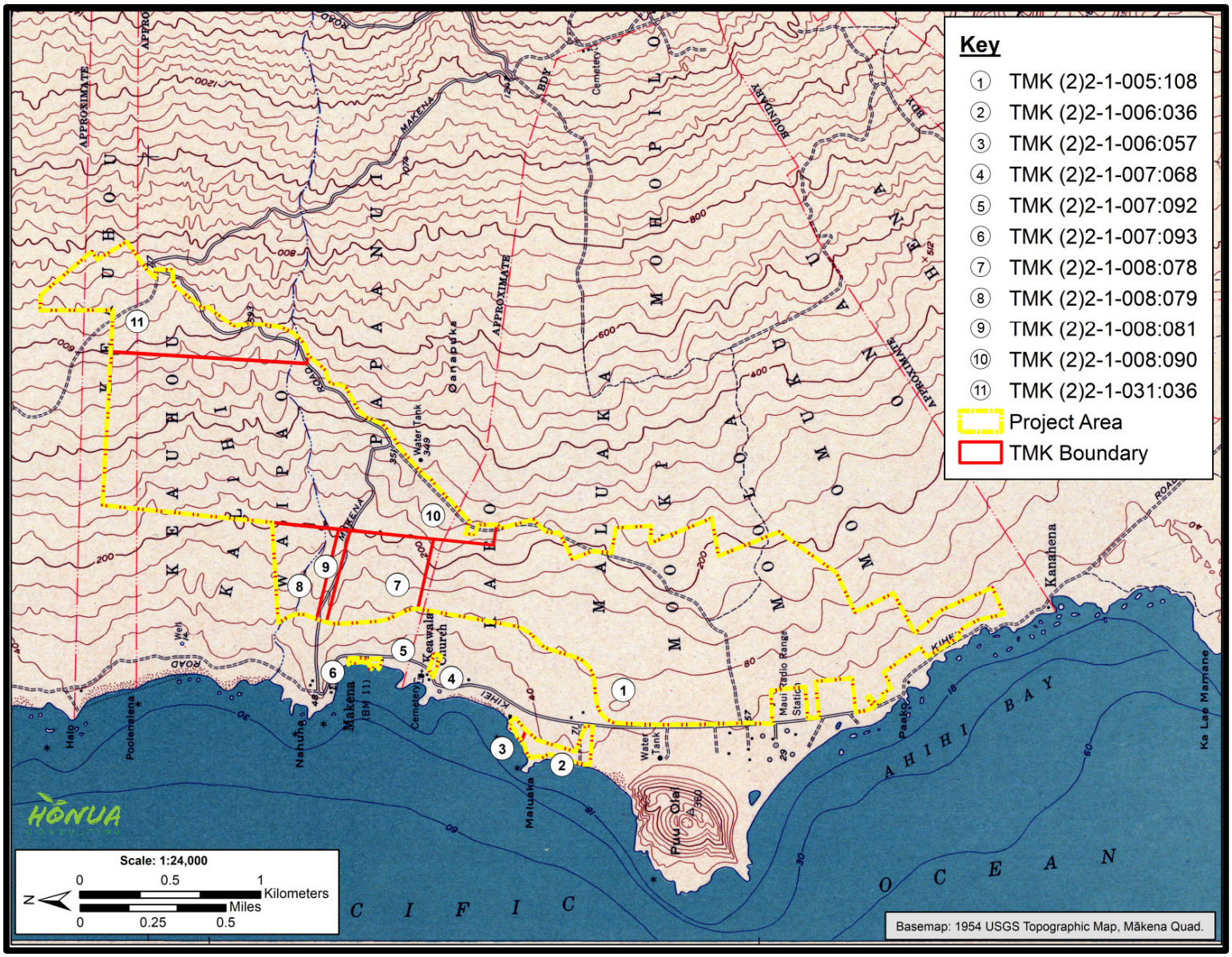

Figure 3. Project Area and TMK Boundaries on 1954 USGS Topography Map (Honua Consulting)

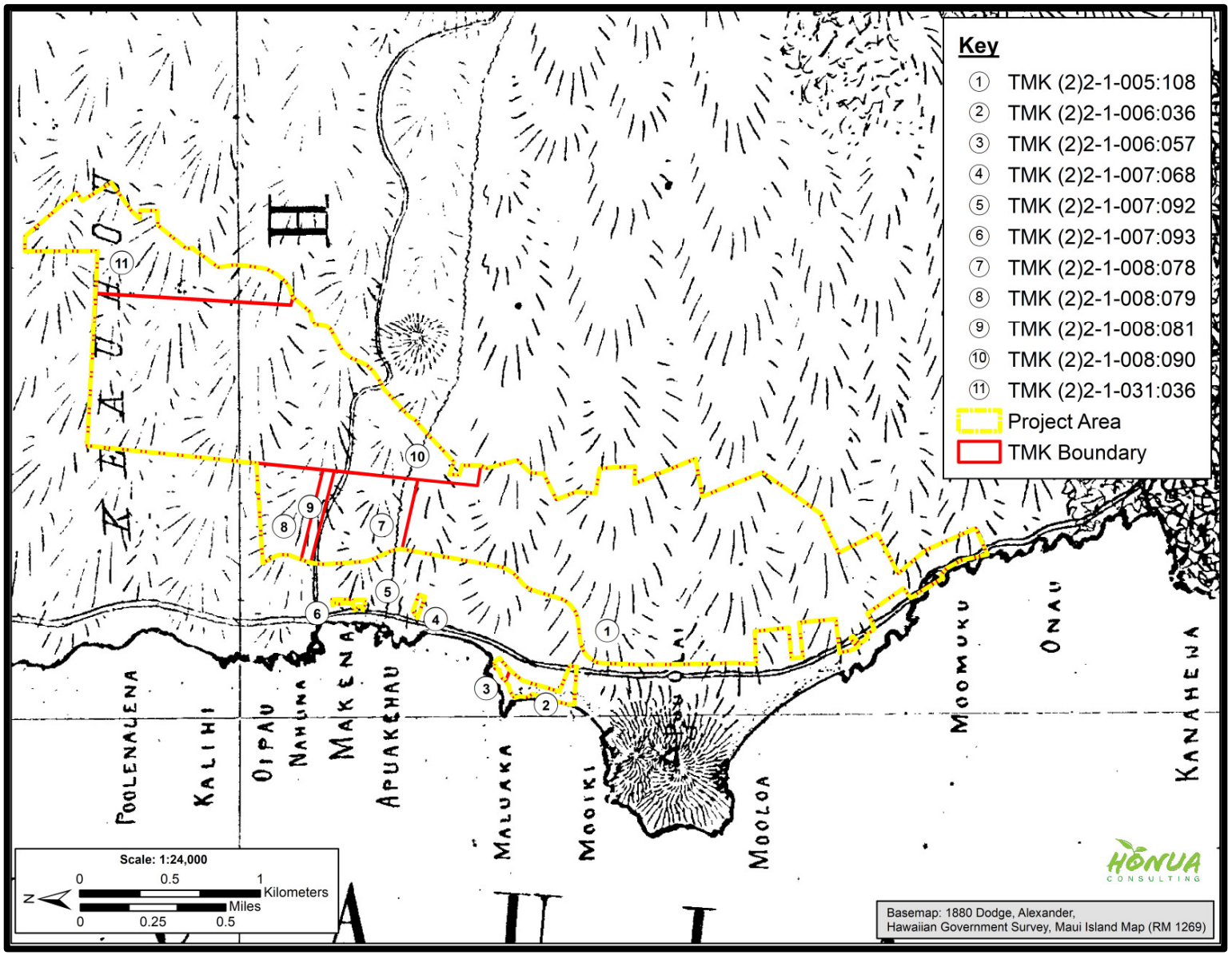

Figure 4. Project Area and TMK Boundaries on 1880 Registered Map 1269 (Honua Consulting)

1.2 Background

State and County agencies have an affirmative obligation to preserve and protect Native Hawaiians' customarily and traditionally exercised rights to the extent feasible.[2] State law further recognizes that the cultural landscapes provide living and valuable cultural resources where Native Hawaiians have and continue to exercise traditional and customary practices, including hunting, fishing, gathering, and religious practices. In *Ka Pa'akai*, the Hawai'i Supreme Court provided government agencies an analytical framework to ensure the protection and preservation of traditional and customary Native Hawaiian rights while reasonably accommodating competing private development interests. This is accomplished through:

1) The identification of valued cultural, historical, or natural resources in the project area, including the extent to which traditional and customary Native Hawaiian rights are exercised in the project area;
2) The extent to which those resources—including traditional and customary Native Hawaiian rights—will be affected or impaired by the proposed action; and
3) The feasible action, if any, to be taken to reasonably protect Native Hawaiian rights if they are found to exist.

The appropriate information concerning the project area has been collected, focusing on areas near or adjacent to the project area. A thorough analysis of this project and potential impacts to cultural resources, historical resources, and archaeological sites is included in this survey.

This CIA provides an overview of cultural and historic resources in the project area using thorough literature review, community and cultural practitioner consultation, and high-level, project-specific surveys. This CIA focuses on identifying areas in which disturbance should be avoided or minimized to reduce impacts to historic properties or culturally important features. The paramount goal is to prevent impacts through avoidance of sensitive areas and mitigating for impacts only if avoidance is not possible.

1.3 Geographic Extent

The geographic extent for impacts to cultural resources and historic properties includes the project area and localized surroundings. This CIA also reviews some of the resources primarily covered by the regulatory review. It primarily researches and reviews the range of biocultural[3] resources identified through historical documents, traditional knowledge,

[2] Article XII, Section 7 of the Hawai'i State Constitution, *Ka Pa'akai O Ka 'Āina v. Land Use Commission*, 94 Haw. 31 [2000] (Ka Pa'akai), Act 50 SLH 2000

[3] Honua Consulting uses the term "biocultural" to refer to natural and cultural resources.

information found in the Hawaiian language historical cache, and oral histories and knowledge collected from cultural practitioners and experts.

The best practice for CIAs is to define a geographic extent beyond the identified or typical boundaries of the geographic project area. The recommended area is typically the size of the traditional land area (ahupua‘a) or region (moku), but this can be larger or smaller depending on what best helps to identify the resources appropriately.

1.4 Goal of Cultural Impact Assessments

This survey, along with the archaeological work being conducted by ASM, looks to fulfill the requirement of taking into account the Project’s potential impacts on historic and cultural resources and, at a minimum, describe: a) any valued cultural, historic, or natural resources in the area in question, including the extent to which traditional and customary Native Hawaiian rights are exercised in the area; b) the extent to which those resources – including traditional and customary Native Hawaiians rights – will be affected or impaired by the Project; and c) the feasible action, if any, to be taken to reasonably protect native Hawaiian rights if they are found to exist.

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2.0 Methodology

Numerous studies have been conducted on this area, but few have effectively utilized Hawaiian language resources and Hawaiian knowledge. This appears to have impacted modern understanding of this location, as many of the relevant documents are native testimonies given by Kanaka Hawai‘i (Hawaiians) who lived on this land.

While hundreds of place names and primary source historical accounts (from both Hawaiian and English language narratives) are cited in this document, it is impossible to glean the whole story of these lands from any given manuscript. These primary source historical accounts cover a range of history spanning generations. Importantly, the resources herein are a means of connecting people with the history of their communities and validating that they are part of that history. Knowledge of place will, in turn, promote appreciation for place and encourage acts of stewardship for the valued resources that we pass on to the future.

Background research was conducted using materials obtained from the State Historic Preservation Division (SHPD) library in Kapolei and the Honua Consulting, LLC report library. On-line materials consulted included the Ulukau Electronic Hawaiian Database (www.ulukau.com), Papakilo Database (www.papakilodatabase.com), the State Library on-line (http://www.librarieshawaii.org/Serials/databases.html), and Waihona ‘Āina Māhele database (http://www.waihona.com). Hawaiian terms and place names were translated using the on-line Hawaiian dictionaries (Nā Puke Wehewehe ‘Ōlelo Hawai‘i) (www.wehewehe.com), *Place Names of Hawai‘i* (Pukui et al., 1976), and *Hawai‘i Place Names* (Clark, 2002). Historic maps were obtained from the State Archives, State of Hawai‘i Land Survey Division website (http://ags.hawaii.gov/survey/map-search/), UH-Mānoa Maps, Aerial Photographs, and GIS (MAGIS) website (http://guides.library.manoa.hawaii.edu/magis). Maps were geo-referenced for this report using ArcGIS 10.3. GIS is not 100% precise and historic maps were created with inherent flaws; therefore, geo-referenced maps should be understood to have some built-in inaccuracies.

While conducting the research, primary references included, but were not limited to: land use records, including the Hawaiian Land Commission Awards (LCA) records from the Māhele ‘Āina (Land Division) of 1848; the Boundary Commission Testimonies and Survey records of the Kingdom and Territory of Hawai‘i; and historical texts authored or compiled by numerous native and foreign writers. The study also includes several native accounts from Hawaiian language newspapers (primarily compiled and translated from Hawaiian to English by Kepā Maly), and historical records authored by nineteenth century visitors and residents of the region.

Historical and archival resources were located in the collections of the Hawai‘i State Archives, Survey Division, Land Management Division, Survey Division, and Bureau of Conveyances; the Bishop Museum Library and Archives; the Hawaiian Historical Society and the Hawaiian Mission Children’s Society Library; University of Hawai‘i-Hilo Mo‘okini Library; the National Archives and Records Administration, Maryland; the Library of Congress, Washington D.C.; the National Oceanic and Atmospheric Administration National Library, Maryland; the Smithsonian Institution Natural History and National Anthropological Archives libraries, Washington, D.C.; the Houghton Library at Harvard; the United States Geological Survey (USGS) Library, Denver; private family collections; and in the collection of Kumu Pono Associates LLC. This information is generally cited in categories by chronological order of the period depicted in the narratives.

M.P. Nogelmeier (2010) discusses the adverse impacts of methodology that fails to properly research and consider Hawaiian language resources. He strongly cautions against a mono-rhetorical approach that marginalizes important native voices and evidence from consideration, specifically in the field of archaeology. For this reason, Honua Consulting consciously employs a poly-rhetorical approach, whereby all data, regardless of language, is researched and considered. To fail to access these millions of pages of information within the Hawaiian language cache could arguably be a violation of Act 50, as such an approach would fundamentally fail to gather the best information available, especially considering the voluminous amounts of historical accounts available for native tenants in the Hawaiian language.

Hawaiian culture views natural and cultural resources as largely inextricable: without the resources provided by nature, cultural resources could and would not be procured. From a Hawaiian perspective, all natural and cultural resources are interrelated, and all natural and cultural resources are culturally significant. Kepā Maly (2001), ethnographer and Hawaiian language scholar, points out, “In any culturally sensitive discussion on land use in Hawai‘i, one must understand that Hawaiian culture evolved in close partnership with its natural environment. Thus, Hawaiian culture does not have a clear dividing line of where culture ends and nature begins” (p. 1). As leading researchers and scholars on Hawaiian culture, Maly and his wife, Onaona, have conducted numerous ground-breaking studies on cultural histories throughout Hawai‘i. A substantial part of the archival research utilized in this study was previously compiled and published by Kepā and Onaona Maly, who have granted their permission to use this important work and are identified properly as associated authors and researchers to this study.

This study also specifically looks to identify intangible resources. Tangible and intangible heritage are inextricably linked (Bouchenaki, 2003). Intangible cultural resources, also identified as intangible cultural heritage (ICH), are resources without a physical form, such as hula or mele (song). These resources are critical to the perpetuation of cultures

globally. International and human rights law professor Federico Lenzerini (2011) notes that, “At present, we are aware on a daily basis of the definitive loss—throughout the world—of language, knowledge, knowhow, customs, and ideas, leading to the progressive impoverishment of human society” (p. 12). Lenzerini (2011) goes on to warn that:

> The rich cultural variety of humanity is progressively and dangerously tending towards uniformity. In cultural terms, uniformity means not only loss of cultural heritage—conceived as the totality of perceptible manifestations of the different human groups and communities that are exteriorized and put at the others’ disposal—but also standardization of the different peoples of the world and of their social and cultural identity into a few stereotyped ways of life, of thinking, and of perceiving the world. Diversity of cultures reflects diversity of peoples; this is particularly linked to ICH, because such a heritage represents the living expression of the idiosyncratic traits of the different communities. Preservation of cultural diversity, as emphasized by Article 1 of the UNESCO Universal Declaration on Cultural Diversity, ‘is embodied in the uniqueness and plurality of the identities of the groups and societies making up humankind’. Being a ‘source of exchange, innovation and creativity’, cultural diversity is vital to humanity and is inextricably linked to the safeguarding of ICH. Mutual recognition and respect for cultural diversity—and, *a fortiori*, appropriate safeguarding of the ICH of the diverse peoples making up the world—is essential for promoting harmony in intercultural relations, through fostering better appreciation and understanding of the differences between human communities. (p. 103)

Therefore, tradition and practice, as elements of Hawaiian ICH, are essential to the protection of Hawaiian rights, the perpetuation of the Hawaiian culture, and the preservation of cultural diversity as a whole.

2.1 Identifying Traditional or Customary Practices

Through the contextual lens of tradition and practice serving as elements of Hawaiian ICH, Honua Consulting developed a framework to define traditional or customary practices (Figure 5).

The first element, knowledge, has been referred to as traditional ecological knowledge (TEK), Indigenous local knowledge, or ethnoscience. In the context of this study, knowledge is the information, data, or expertise Native Hawaiians or local communities possessed or possess about an area’s environment. In a traditional context, this would have included information Hawaiians possessed to have the skills to utilize the area’s resources for a range of purposes, including, but not limited to, travel, food, worship or habitation. This element is largely intangible.

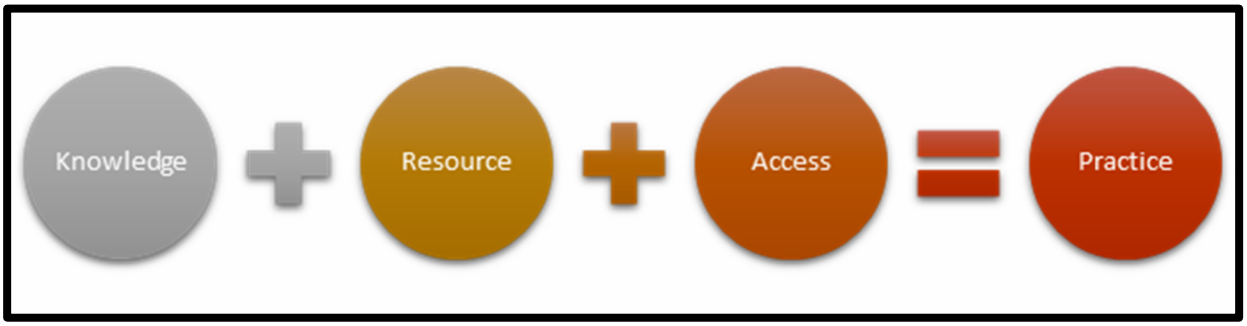

Figure 5. Diagram of Elements that Contribute to Traditional or Customary Practices

The second element is the resources themselves. These are primarily tangible resources, either archaeological resources (e.g., habitation structures, walls, etc.) or natural resources (e.g., plants, animals, etc.). Resources can also be places or geographic features, such as a wahi pana (legendary places) or sacred/culturally important sites. While wahi pana may sometimes be construed as general locations, their importance and value need not be diminished. It is important to recognize that potential eligibility as a "historic site" on the National Register of Historic Places would require identifiable boundaries of a site.

The third element is access. Access serves as the important catalyst through which the first two elements, knowledge and resource, can be operationalized for traditional and customary practices to take place. In this way, practitioners must have access to the resource to practice their traditional customs. Importantly, access as defined here expands beyond mere physical access but also includes the ability to access resources. For example, if a particular plant species is used for medicinal purposes, a sufficient population of that plant species must be accessible to practitioners for use. In this example, an action that would adversely impact the population of the culturally important plant species would impact practitioners' ability to access that plant. By extension, the action would also adversely impact the traditional or customary practice.

Traditional or customary practices are, therefore, the combination of knowledge, resource(s), and access. Each of these individual elements should be researched and identified in assessing any potential practices or impacts to said practices.

2.2 Traditional Knowledge and the Identification of Cultural Resources

Traditional Native Hawaiian practitioners were scientists and expert natural resource managers by necessity. Without modern technological conveniences to rely upon, Hawaiians developed and maintained prosperous and symbiotic relationships with their natural environment for at least a thousand years. Their environments were their families, their homes, and their laboratories. They knew the names of every wind and every rain. The elements taught and inspired. The ability of Indigenous people to combine spirituality

and science led to the formation of unique land-based methodologies that spurred innovation. Therefore, identifying significant places requires a baseline understanding of what made places significant for Hawaiians.

Native Hawaiians reinforced the biodiversity that continues to exist in Hawai‘i today through their customary traditional natural resource management practices. Hawaiians were both settlers and explorers. Krauss (1993) explains: “Exploration of the forests revealed trees, the timber of which was valuable for building houses and making canoes. The forests also yielded plants that could be used for making and dying tapa, for medicine, and for a variety of other artifacts” (p. 1). Analysis of native plants and resource management practices reveals the depth to which Hawaiians excelled in their environmental science practices:

> [Hawaiians] demonstrated great ability in systematic differentiation, identification, and naming of the plants they cultivated and gathered for use. Their knowledge of the gross morphology of plants, their habits of growth, and the requirements for greatest yields is not excelled by expert agriculturists of more complicated cultures. They worked out the procedures of cultivation for every locality, for all altitudes, for different weather conditions and exposures, and for soils of all types. In their close observations of the plants they grew, they noted and selected mutants (spores) and natural hybrids, and so created varieties of the plants they already had. Thus over the years after their arrival in the Islands, the Hawaiians added hundreds of named varieties of taro, sweet potatoes, sugarcane, and other cultivated plants to those they had brought with them from the central Pacific. (Krauss, 1993, p. 3)

The present analyses of archival documents, oral traditions (oli [chants], mele, and/or hula dances and ha‘i [storytelling performances]), and Hawaiian language sources including books, manuscripts, and newspaper articles, are focused on identifying recorded cultural resources present on the landscape, including: Hawaiian and non-Hawaiian place names; landscape features (ridges, gulches, cinder cones); archaeological features (kuleana parcel walls, house platforms, shrines, heiau [places of worship], etc.); culturally significant areas (viewsheds, unmodified areas where gathering practices and/or rituals were performed); and significant biological, physiological, or natural resources. This research also looks to document the wide range of Hawaiian ethnoscience that existed within the geographic extent.

2.3 Mo‘olelo ‘Āina: Native Traditions of the Land

Among the most significant sources of native mo‘olelo (history, narrative, story) are the Hawaiian language newspapers which were printed between 1838 and 1948, and the early writings of foreign visitors and residents. Most of the accounts that were submitted to the papers were penned by native residents of areas being described and noted native

historians. Over the last 30 years, Kepā Maly has reviewed and compiled an extensive index of articles published in the Hawaiian language newspapers, with particular emphasis on those narratives pertaining to lands, customs, and traditions. Many traditions naming places around Hawai‘i are found in these early writings. Many of these accounts describe native practices, the nature of land use at specific locations, and native mo‘olelo. Thus, we are given a means of understanding how people related to their environment and sustained themselves on the land.

2.4 Historic Maps

There are also numerous, informative historic maps for the region. Surveyors of the nineteenth century were skilled in traversing land areas and capturing important features and resources throughout Hawai‘i’s rich islands. Historic maps were carefully studied, and the features detailed therein were aggregated and categorized to help identify specific places, names, features, and resources throughout the study area. From these, among other documents, new maps were created that more thoroughly capture the range of resources in the area.

2.5 Archaeological and Biological Studies

ASM Affiliates conducted an archaeological literature review and surface survey. The findings have been incorporated into **Section 4.1 (Historic Properties and Cultural Sites)**, along with a discussion of other cultural resources known in the area.

A biological field study was completed by Rick Barboza. The findings are discussed in **Section 4.2.1 (Flora)** and **Section 4.2.2 (Fauna).**

2.6 Ethnographic Methodology

Information from lineal and cultural descendants is instrumental in procuring information about the project area’s transformation over time and its changing uses. Information gathered through research helped to focus the interview questions. In general, interviewees are asked to provide the following information: 1) cultural, generational, or personal ties to the project area and its vicinity; 2) cultural resources (i.e., flora, fauna, water features) that are currently known to them within the project area; 3) traditions and customs that have taken place in the past or are currently taking place within the project area and immediate vicinity; 4) any foreseen potential impacts to resources and traditions, as well as concerns they have about the proposed project activities; and 5) recommendations to mitigate potential impacts, if any, as a result of the project.

Descendants and cultural practitioners from the area were contacted and interviewed for this CIA; these interview summaries are included in **Section 5.0 (Oral Records, Interviews, and Consultations)**.

2.7 Additional Consultation Outside the CIA

Separate, and extensive, community consultation was offered for this DEIS. The Social Impact Assessment (SIA) for the Mākena Mauka project provides a detailed account of the multiple ways in which the community has been consulted throughout the environmental review process. Rooted in the requirements of Hawai‘i’s Environmental Impact Statement (EIS) law and informed by both formal procedure and culturally appropriate engagement strategies, the consultation process has involved a broad array of opportunities for community voices to be heard and considered. The formal consultation began with the publication of the EIS Preparation Notice (EISPN) on June 8, 2024, followed by a republished version on June 23, 2024, which extended the public comment period and added a second scoping meeting. These public scoping meetings were held on July 1 and July 30, 2024, in Kīhei, Maui, and allowed residents and stakeholders to provide oral and written testimony regarding the proposed development. Concerns raised in these forums included housing affordability, public access, environmental degradation, and cultural erasure. Many community members opposed the project altogether, expressing distrust in developers and concern about the long-term implications for the land and local residents.

Recognizing that not all impacted individuals were able to attend these meetings, the SIA team developed a targeted, confidential online survey to capture a broader range of perspectives. The survey, which ran from January 31 to February 10, 2025, was distributed to nearly 600 individuals, including Native Hawaiian cultural practitioners, lineal descendants of the area, local residents, business owners, nonprofit representatives, and individuals who had previously testified. The survey consisted of demographic questions, inquiries into participants’ relationships with Mākena Mauka, and open-ended questions about their perceptions of the project and recommendations for mitigation. Anonymity and voluntary participation were emphasized to ensure respondents could speak freely and without fear of reprisal. The survey yielded 161 responses, representing a diversity of age, ethnicity, and connection to the project area, and analysis revealed saturation in the qualitative data, meaning no new themes emerged from additional responses, validating the sufficiency of the dataset.

To enhance transparency and build trust, the SIA team conducted a “member checking” process in which preliminary findings were shared with the 55 individuals who had volunteered to remain engaged. These individuals were invited to review and provide feedback on the draft results, affirming whether the themes reflected their views and whether their voices had been accurately represented. The response rate for this validation effort was consistent with best practices in qualitative research, and the

feedback was overwhelmingly supportive of the identified themes, which included distrust in mitigation promises, concerns about displacement, a desire to prioritize Native Hawaiian needs and rights, and frustration over historical patterns of exclusion and exploitation in development. Participants appreciated the opportunity to review the findings and offered nuanced insights to further inform the analysis.

In addition to these initial rounds of engagement, the SIA outlines a path for continued consultation through the organization of community focus groups. These focus groups are intended to bring together residents, lineal descendants, cultural practitioners, and other stakeholders to further refine and prioritize mitigation strategies. They aim to provide a space for deeper dialogue, relationship-building, and the co-development of culturally appropriate solutions. Focus groups will serve as a platform for residents to advocate for their needs in areas such as emergency evacuation planning, workforce housing, environmental protection, and the preservation of public access to trails, beaches, and cultural sites.

Throughout the SIA process, a range of community-informed mitigation strategies have emerged. These include the institutionalization of cultural resource management roles for lineal descendants, expansion of employment opportunities for local residents, creation of regenerative farming and educational programs, and commitments to conservation and public infrastructure improvements. The SIA also proposes establishing a Community Advisory Group, endowing scholarships for Native Hawaiian students, and supporting ongoing programs such as community archaeology initiatives and local food distribution efforts. While many of these strategies are commendable, the report also acknowledges persistent skepticism among residents, who question whether developers will follow through on their promises and whether systemic inequities will truly be addressed.

The Mākena Mauka SIA demonstrates a comprehensive and culturally responsive approach to community consultation. Through formal public hearings, anonymous surveys, follow-up validation, and plans for ongoing engagement, the process has provided multiple avenues for residents and stakeholders to voice their concerns and influence the project's trajectory. However, the report also makes clear that consultation is not enough if not coupled with genuine accountability and long-term partnerships that honor the relationships between people, land, and culture. Going forward, the success of the Mākena Mauka project will hinge not only on its compliance with environmental law but on its ability to build and sustain trust with the people of Honua‘ula and Maui.

In addition to the extensive public scoping process, targeted community surveys, and follow-up validation efforts detailed in the Social Impact Assessment (SIA), ongoing consultation on the Mākena Mauka project has been significantly shaped by two groups: the 2017 *Settlement Agreement* between ATC and several plaintiff organizations, and the

Cultural Focus Group (CFG). Together, these consultation processes reflect institutionalized long-term mechanisms for community participation, cultural protection, and environmental stewardship, and establish consultation frameworks that embed Native Hawaiian voices in the governance of the Mākena region.

The 2017 *Settlement Agreement* was the result of legal action brought by Hoʻoponopono o Mākena, the Sierra Club, and Maui Tomorrow Foundation, who challenged the Environmental Assessment and development proposals associated with the Mākena M-5/M-6/S-7/B-2 (MSB) project. This agreement outlines a series of enforceable commitments by ATC that arose from that litigation, including significant reductions in unit counts, restrictions on accessory dwellings and zoning changes, and binding agreements to protect environmentally and culturally sensitive areas. Crucially, the plaintiffs agreed to withdraw their objections in exchange for ATC's formal commitment to mitigation measures, including funding water quality monitoring, ensuring long-term wastewater treatment access for local families, and limiting the overall development to 1,100 units across the entire Mākena resort property.

Incorporated within the *Settlement Agreement* is the formation of the Makena Community Benefit Fund, jointly governed by ATC and the plaintiff groups. This fund is structured to support land conservation, trail and shoreline restoration, cultural programming, and other community-based initiatives. Its creation embeds an enduring community oversight role in the future development of Mākena. The agreement also codifies the obligation to provide 60 affordable housing units—32 within the Mākena area and 28 elsewhere—under the supervision of a community land trust and with priority given to Native Hawaiian and long-time Maui residents. This prioritization was designed to address the displacement concerns raised during the environmental review and to support equitable access to housing in the face of luxury development pressures. The 2017 agreement laid the foundation for structural consultation with environmental and community organizations, but it is important to note that it is largely driven by individuals who are not direct, living descendants of the Mākena area.

The Cultural Focus Group (CFG) plays a vital and ongoing role in the Mākena Mauka project, serving as a core mechanism for ensuring that community voices, particularly those of descendant families and cultural practitioners, guide the planning and entitlement process. Established over a decade ago, the CFG consists of five long-rooted Native Hawaiian families from Mākena: Chang, DeLima, Kuloloio, Luʻuwai, and Hall. These families bring a wealth of ancestral knowledge and cultural expertise, including marine stewardship, land restoration, traditional agriculture, ceremony, and historic preservation. Their multi-generational ties to the land and deep cultural practices position them as trusted stewards, uniquely equipped to drive mitigation strategies that are meaningful, effective, and place-based.

Throughout the planning and entitlement phases of the project, the CFG has operated as more than a consultative body—they have functioned as cultural leaders, educators, and advocates for systems of mitigation grounded in Hawaiian values. The group has worked closely with the applicant to identify key priorities for resource management, develop culturally informed recommendations, and propose frameworks for community access, restoration, and protection. Their insights are shaping proposed approaches for managing water and ocean resources, cultural sites, and wildfire risk, and for restoring dryland forests and other ecological systems essential to the cultural and environmental health of the region.

A central goal of this work is the development of a formal, long-term agreement between ATC Makena and the CFG that would institutionalize this collaborative relationship moving forward. Drawing inspiration from successful models such as the agreements developed by cultural practitioners working on Kahoʻolawe, this effort seeks to create a living document that reflects the values, concerns, and priorities of the descendant community and embeds those into the framework of project governance. While this effort is still in progress, its development reflects a commitment to iterative engagement—one built on trust, transparency, and a shared vision of stewardship.

Even without a finalized agreement, the CFG is already deeply engaged in driving mitigation programming. They are helping to shape the development of integrated planning documents, including resource management strategies and cultural access plans. Their work ensures that mitigation efforts are not simply reactive but proactive—addressing long-term ecological and cultural resilience. This includes ensuring that cultural protocols are followed in site access, that native plant and marine species are protected and restored, and that cultural observation sites such as kilo points and heiau are maintained and respected.

The CFG also plays a key role in shaping public benefits and ensuring community inclusion throughout the development. Their involvement in discussions around fire evacuation planning, shoreline protection, and community gathering spaces has helped align proposed mitigation measures with real, lived community needs. Their contributions are critical in balancing development with the protection of cultural identity, local knowledge, and community health.

Ultimately, the ongoing work of the CFG is a powerful example of what meaningful consultation looks like in practice. It is iterative, place-based, and deeply relational. As the project continues to evolve, the CFG will remain central to its success—ensuring that the vision for Mākena Mauka remains rooted in mālama ʻāina, kuleana, and the continuity of cultural life for generations to come.

This structured and institutionalized relationship between ATC, the CFG, and the broader community represents the applicant's approach to consultation that blends legal obligation, cultural knowledge, and community accountability. The SIA recognizes that consultation is about creating systems for co-management, honoring the kūpuna and their knowledge, and ensuring that generational residents retain the right to shape the future of their homeland.

Together, the ongoing work emerging from the Settlement Agreement, the CFG, and the SIA itself offers a layered and evolving framework of community consultation. It begins with litigation and formal public hearings, deepens through cultural alignment and structured memoranda of agreement, and will continue into the future through ongoing engagement, resource management, cultural education, and cultural site access. The ultimate measure of success will not be in the documents signed, but in whether this consultation results in a project that genuinely reflects the values, priorities, and lived realities of the people of Honua'ula. For that to happen, ongoing accountability to these agreements—and not just symbolic inclusion—must guide the next phases of the Mākena Mauka development.

3.0 Historic Background

An extensive historical background of Honuaʻula moku, where the Project Area is located, is provided in this section, beginning with an overview of Maui generally and then focusing on Honuaʻula. This first section provides an overview of the ahupuaʻa identified in the draft Environmental Impact Statement. It then further refines to focus on the ahupuaʻa of Kaʻeo and the ʻili of Mākena.

Maui has a unique geography because it is "made up of two distinct mountain masses joined by a low flat isthmus" (Sterling, 1998, p. 3). The land divisions on Maui are also unlike those on other islands. Ancient names for Maui include Ihikapalaumaewa and Kulua (Sterling, 1998, p. 2).

In Hawaiian culture, natural and cultural resources – the honua ola (biocultural landscape) – are one and the same. Native traditions describe the formation of the Hawaiian Islands and the presence of life on and around them in the context of genealogical accounts. All forms of the honua ola, including the heavens, mountain peaks, barren lava flows, watered valleys, plains, shores, and the ocean depths, are the kinolau (myriad body forms) of Hawaiian gods, goddesses, and other deities. Hawaiian genealogical accounts reveal that various gods, goddesses, and creative forces of nature gave birth to the Hawaiian Islands. Among them are Wākea (the expanse of the sky, the father) and Papa-hānau-moku (Strata-earth who gave birth to the islands, the mother[4]). Hawaiʻi was the largest and first-born of these island children, followed by Kahoʻolawe or Kanaloa, born as a miscarriage, and then Maui. These same god-beings – or creative forces of nature who gave birth to the islands, stretching from Hawaiʻi to the Moku Papapa,[5] – were also the parents of the first man, Hāloa, the ancestor from which all Hawaiian people are descended. It was in this context of kinship, that the ancient Hawaiians addressed their environment, and it is the basis of the Hawaiian system of land use.

3.1 Overview of Honuaʻula Moku

The moku of Honuaʻula on Maui carries significant historical importance dating back to the early settlement of Hawaiʻi. The naming of Honuaʻula is connected to the aliʻi nui (high chief) Moʻikeha and his brother, Olopana, who "sailed to Tahiti where they lived for a while until Moʻikeha became tired with the situation and decided to return to Hawaii" (Fornander in Sterling, 1998, p. 215). Upon their return, Kamahuaele, Moʻikeha's astrologer and seer, accompanied them along with chiefs, retainers, and relatives. Historical accounts agree that numerous places in the Hawaiian Islands were named after the followers of Moʻikeha. As the fleet traveled along the island shores, Moikeha's companions established

[4] Also Haumea-nui-hānau-wā-wā (Great Haumea—Woman-earth born time and time again).
[5] The distant atolls and pinnacle-islets of the Northwestern Hawaiian Island Chain.

themselves in different locations and named these areas accordingly. The district of Honuaʻula on Maui was among these named places, reflecting this early settlement history.

Sterling (1998) notes ambiguity in the exact meaning of Honuaʻula, suggesting it could refer to the heiau (temple) at the base of Kaʻuiki Hill rather than the entire district, which is some distance from Hana.

The physical geography of Honuaʻula is characterized by distinctive environmental zones and volcanic landscapes. Honuaʻula originally had a much lower forest zone with greater rainfall before the introduction of cattle. The forest zone plants were cultivated in the lower uplands above inhabited areas.

The geology of the region was marked by lava flows. Sterling (1998) notes that "the eastern and coastal portion of Honuaʻula was cultivated by Hawaiian planters until recent years" despite two relatively recently lava flows "which erupted from fissures below the crater and only a few miles inland and which covered many square miles of land" (p. 215).

The eastern and coastal portions were historically cultivated, though by the time of documentation, few homes were still standing at Kanaio, where upper road travel eastward was possible. Several Hawaiian families worked at Ulupalakua Ranch and maintained homes near the ranch house, cultivating dry taro.

Honuaʻula is comprised of at least 20 ahupuaʻa on the slopes of Haleakalā—the district also includes the islands of Kahoʻolawe and Molokini. It is likely that many traditions, particularly those associated with various place names, once existed, but the significant decline of the native population that began immediately after Western contact and continued through the 1890s contributed to a loss of ʻike kūpuna (ancestral knowledge).

Notable place names include but are not limited to:

- Nuʻukauila Kahimanini, Mōkapu and Waileʻa (along the coast)
- Haleolono, Piliwale, Hao, Kaʻōhai, Nena, Keahuaaao (the kula lands)
- Puʻu ʻIo (at the 2,840 foot elevation); Nupawai o Kukui o Piʻikea (ca. 3,100 foot elevation)

Honuaʻula witnessed significant historical conflicts. One such conflict is described by historian S.M. Kamakau (1992), highlighting Honuaʻula's role in Hawaiian political conflicts and warfare:

> In the year 1776 Ka-lani-ʻopuʻu and the chiefs returned to war on Maui, and in the battle with Ka-hekiliʻs forces at Wailuku were completely overthrown. The army landed at Keoneʻoʻio, their double canoes extending to Makena at Honuaʻula.

> There they ravaged the countryside, and many of the people of Honuaʻula fled to the bush. (p. 85)

Within Honuaʻula lies Makena. Makena is a significant place name in south Maui that exists as an ʻili, which is a smaller traditional Hawaiian land division, but there is no documentation of Makena constituting its own ahupuaʻa, although the name is widely known and utilized. The Makena ʻili is part of the larger Honuaʻula moku, demonstrating the nested nature of Hawaiian land organization systems.

Makena served as a small but important fishing settlement and village before Western contact. Its residents specialized in nearshore fishing techniques, utilizing the abundant marine resources of the protected bay area. The village site featured traditional Hawaiian residential structures and a significant religious complex that included several heiau (temples).

Makena also encompasses a coastal region with distinctive black lava fields, white sand beaches, and kīawe forests. Its boundaries were traditionally defined by natural landmarks rather than strict geometric measurements, reflecting indigenous Hawaiian spatial conceptualization that integrated cultural, ecological, and spiritual elements into land management practices.

As a place name, Makena carries meaning in Hawaiian language - "makena" translates to "abundance" or alternatively, some interpretations suggest it means "the mourning" or "the wailing," possibly referencing the sound of winds that frequent the area. This nomenclature reflects Hawaiian practices of naming places according to their natural characteristics or historical events. As noted, area descendants have different preferences as to the name and meaning.

The reason for these different interpretations traces back to how Hawaiian knowledge evolved and became preserved over time. Before Western contact, Native Hawaiians preserved their rich cultural knowledge through an exclusively oral tradition. Knowledge transfer occurred through chants, genealogies, and stories passed down through generations by memory and precise verbal transmission.

When American missionaries arrived in the 1820s, they developed a written Hawaiian alphabet, introducing diacritical marks to capture the language's unique sounds: the kahakō (macron) elongates vowels, while the ʻokina (glottal stop) represents a consonant sound. These marks are crucial for distinguishing between words with different meanings but similar spellings.

Despite their importance, these marks were often omitted in early publications. The Hawaiian Renaissance of the 1970s sparked renewed interest in language preservation, leading to standardization of these markings. Today, use of kahakō and ʻokina is commonly used in Hawaiian-language education, which blends traditional oral pedagogical methods with modern written instruction, honoring both the spoken traditions central to Hawaiian identity and the written forms that help preserve the language for future generations.

These differing interpretations are consistent with Hawaiian epistemology or ʻike Hawaiʻi. In Hawaiian epistemology, the concept of makawalu—meaning "numerous" or "many"—embodies a perspective that values multiple viewpoints and approaches to understanding. Literally translated as "eight eyes," makawalu encourages examining situations from diverse perspectives to develop comprehensive understanding. This philosophy complements the ʻōlelo noʻeau (Hawaiian proverb): "ʻAʻohe pau ka ʻike i ka hālau hoʻokahi."

This proverb translates to "All knowledge is not taught in the same school" and "One can learn from many sources." As one cultural practitioner reflects, this wisdom acknowledges that different "houses" of knowledge offer distinct but equally valid perspectives—whether in hula traditions where different halau (schools) teach unique styles, or in broader life contexts.

Mary Kawena Pukui documented this saying as ʻŌlelo Noʻeau #203, noting it serves as a reminder that there are many ways of practicing and engaging with knowledge. Together, these concepts affirm that diverse knowledge systems can coexist and complement one another, creating a richer tapestry of understanding through their intersection.

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commonly used in Hawaiian-language education, which blends traditional oral pedagogical methods with modern written instruction, honoring both the spoken traditions central to Hawaiian identity and the written forms that help preserve the language for future generations.

3.1.1 Fishing Grounds of Honua‘ula

Fishing grounds were vital economic and subsistence resources throughout Honua‘ula. The following is detailed information about numerous fishing grounds, their landmarks, and navigation points used by local fishermen:

1. Pahua, located at Kanaio with Holu Point as its upper mark and Puwai as its lower mark, featured Ka-hope-o-ka-waa, a cave on the beach containing a stone resembling a man standing. When this cave appeared slightly toward the windward side, fishermen knew they were over the fishing ground, which was 40 or more fathoms deep.

2. Hiu, another fishing ground on the seaward side of Molokini, used the hill of Puuokali on the western side of Molokini as its identifying landmark.

3. Keahua used the sands of Nihomole on Molokini’s eastern side as its upper mark, with Pohaku-olu near Kaule Point at Kohe-o-Hala as its lower mark.

These detailed descriptions display the sophisticated geographical knowledge maintained by Hawaiian fishermen, who used visual triangulation methods to precisely locate productive fishing grounds in deep waters. The preservation of this knowledge represents valuable cultural documentation of traditional fishing practices in Honua‘ula moku.

The importance of fishing grounds in Honua‘ula was officially recognized in the kingdom’s legal framework. Under King Kamehameha III in 1839, the Hawaiian constitution and code of laws included specific provisions protecting traditional fishing grounds:

> 2. Respecting the tabooed fishing grounds. Those fishing grounds which are known by the people to have shoals of fish remaining upon them shall, at the proper season for fishing, be placed under the protective taboo of the tax officers for the King... On Maui, the kuikui of Honuaula and other places. (Sterling, 1998, p. 216)

This legal protection demonstrates the economic and cultural importance of these fishing grounds to the Hawaiian Kingdom and the recognition of traditional resource management practices within the emerging Western-influenced legal structure. Fishing

practices associated with the region are further detailed in **Section 6.13 (Fishing, Spearfishing, and Limu Picking)**.

3.1.2 Sacred Sites of Honua‘ula

Honua‘ula contained numerous sacred sites and places of power. A fishpond at Honua‘ula is mentioned in connection with Kane and Kanaloa, major deities in Hawaiian tradition:

> [When Kane and Kanaloa would travel around throughout Hawaii, if they came to a place that did not have drinking water Kane would thrust his stick into the ground and water would gush forth.] And thus were they wont to do, and thus did they break through a certain fish pond at Honuaula with their power. (Sterling, 1998, p. 216)

This account illustrates how natural features in Honua‘ula were integrated into spiritual narratives about the actions of gods, sanctifying the landscape.

Pohakueaea represented another spiritually significant location in Honua‘ula. According to A. Fornander (in Sterling, 1998), “Palila took a dislike to Molokai, so he again pushed out his war club and flew to Kaunolu, Lanai. From this place he crossed over to Kahoolawe and from there to Pohakueaea in Honuaula. At this place he sat down and rested” (p. 216). There is a rock off the point at the shore below Pu‘u Pimoe in Kanaio called Pōhaku Eaea, providing physical identification of this mythological site. The association with Palila, a legendary figure with supernatural abilities, elevated this natural landmark to cultural significance.

Honua‘ula contained numerous heiau serving different purposes. Three significant heiau noted by Sterling (1998, p. 217) include:

1. Na-hale-loulu-a-Kane, built for the prevention of epidemics and famine, dedicated to Kane.
2. Ka-ai-aea, built for multiplying and producing food.
3. Kahe-manini, built for multiplying fish.

These religious structures reflected the community’s priorities—disaster prevention, food security, and resource abundance—and illustrated how religious practice was integrated with resource management and community welfare.

Another sacred cultural site is the black sand beach of Kanaio. Sterling (1998) describes a conversation with Charlie Aikala, who called it Keawanaku and appeared hesitant to guide visitors there:

> Saw Charlie Aikala (from Keoneoio-LaPerouse) for a minute New Year's and asked him the name of "black sand beach." He called it Keawanaku. He was a little bit vague about things but was more than anxious to "run" me in and over the area. (p. 217)

The area seemed to be a kipuka (an older land area surrounded by newer lava flows), with evidence of old house sites, though the informant Charlie Aikala may have missed some features: "Doesn't look like he went further as he doesn't mention the dry pond and Ko'a or the cairns and enclosed heiau" (Sterling, 1998, p. 217). This account provides insight into both the physical landscape and the sometimes protective attitude of local knowledge keepers toward sacred or culturally significant sites.

Cultural sites are further discussed in the archaeological survey and in **Section 4.1 (Historic Properties and Cultural Sites)**.

3.1.3 Lava Flows in Honua'ula

The geological history of Honua'ula, particularly its lava flows, features prominently in historical sources detailing the area. The Kalua o Lapa flow narrative by E.D. Baldwin (1883, in Sterling, 1998) includes a traditional legend:

> Out in the sea near the middle of the Kalua o Lapa flow is a large rock or portion of this flow, called Pohaku o Paea. The natives told me an interesting legend about this rock. That it was once a woman who was raising chickens near where the Kalua o Lapa flow broke out and that she quarreled with Pele and that Pele in her wrath poured out the molten lava and chased her into the sea, finally catching her and turning her into this rock. (p. 224)

This account differs from another version by L.A. Thurston from 1924, illustrating how geological features became integrated into Hawaiian cultural narratives that could vary over time and between storytellers.

There is much debate about the dating of the last volcanic activity on Maui. Father Bailey's statement from 1879 (in Sterling, 1998) contradicts the popular belief that there had been no recent volcanic activity:

> "I was first stationed on Maui in 1841," said Father Bailey. "In my trips about the island I noticed a lava flow at Honuaula, at the south end of East Maui, which appeared much fresher than the other flows—much more so than it appears now (1879). I asked the natives if they knew when that flow occurred, and they told me that their grandparents saw it. They also told me that a woman and child were surrounded by the flow, but escaped after it cooled." (p. 224)

Thurston's subsequent investigation estimated this flow occurred around 1750-1790, based on calculations of generations and local testimonies, making it significantly more recent than previously believed. Sterling (1998) notes that "the government map of Maui shows three such flows, all in Honuaula and originating below the upper road around the island" (p. 224). The detailed description of this flow indicates it "begins about halfway down, between the upper road and the sea. It spreads to a width of a mile or so at the coast, having built quite a promontory out into the ocean... The lava is rough a-a, entirely devoid of vegetation, and looks as though it might have first seen daylight in the 20th instead of the 18th century" (Sterling, 1998, p. 224).

The region is also the site of important moʻolelo about Pele, the volcano goddess, who has connections to Honuaʻula. One significant story relates to Paea, a man from Kanaio, as collected by Sterling (1998):

> The story tells of Pele seeing a handsome man who lived in Kanaio near Puu Mahoe (Twin Hill) in the land of Honua-ula (Red Earth). Immediately she assumed the form of a gorgeous young woman and approached the man, Paea (Flint). Few men are immune to Pele's charms, and Paea was no exception. But he loved his sweetheart, Kalua (The enjoyment), and, wisely, recognized the goddess by her fiery eyes and wanted no part of any dalliance with the fire-eating beauty. (p. 227)

The narrative continues with their flight and eventual capture by Pele, who turned them to stone:

> Pele caught the two mortals just below Ana Muki (Cave of Whispering Spirits), near Puu Mahoe. Today Paea's head and torso form the Poʻo Kanaka (Mans Head) stone, which is shaped like the map of Maui and can be seen just above the road which leads from Ulupalakua to Kanaio Village. The rest of his body forms Pohaku Paea [Pohaku Paea] (Stone Paea) which is just next to the remains of the fish ponds at La Perouse Bay. (Sterling, 1998, p. 227)

These stories served multiple purposes in Hawaiian culture. They explained geological features, reinforced cultural values and warnings about respecting spiritual forces, and embedded places in the landscape with cultural meaning that helped people remember and navigate their environment.

3.2 Traditional Period

The ahupuaʻa within the moku of Honuaʻula represent a rich tapestry of Hawaiian history, culture, and natural resource management. From the naming origins connected to early Polynesian voyagers, through the religious structures dedicated to abundance and protection, to the fishing grounds that sustained communities, these land divisions

maintained their distinct identities while functioning as parts of an integrated cultural landscape.

The rich oral traditions, historical accounts, and archaeological remnants documented in Sterling's *Sites of Maui* provide valuable insights into how Hawaiians in this region understood their environment, managed resources, practiced their spiritual traditions, and maintained cultural knowledge across generations. The detailed documentation of place names, fishing grounds, heiau, and cultural narratives preserves critical information about traditional Hawaiian knowledge systems and resource management practices in Honua'ula that might otherwise have been lost to history.

Through these accounts, there is a better understand of how the people of Honua'ula's various ahupua'a developed sustainable lifeways adapted to the specific environmental conditions of this relatively dry, lava-covered region of Maui, creating a distinctive cultural landscape defined by their relationship with both the land and sea.

Much of the current project will occur specifically in the ahupua'a of Ka'eo and the broader Mākena region of South Maui, representing an area of profound historical and cultural significance in Hawaiian history. This CIA explores the rich tapestry of human settlement, cultural development, and historical transitions that have shaped this unique landscape from traditional Hawaiian times through the post-contact era and into modernity. Drawing from the comprehensive historical-cultural study by Kepā Maly and Onaona Maly (2005) "He Mo'olelo 'Āina No Ka'eo Me Kahi 'Āina E A'e Ma Honua'ula" and other primary resources, this section aims to provide a cohesive historical overview of a region that has witnessed centuries of human habitation and cultural evolution.

The significance of this historical narrative extends beyond mere academic interest. Understanding the rich cultural heritage of Ka'eo and Mākena informs contemporary land use decisions, cultural preservation efforts, and the perpetuation of Native Hawaiian traditions and practices. As modern development continues to transform the physical landscape of South Maui, documenting the historical record becomes increasingly important for maintaining cultural connections to place and ensuring that future generations can appreciate the depth of history embedded in this land.

This historical account draws heavily upon the methodical research conducted by Maly and Maly, whose work integrates diverse historical sources including Hawaiian language newspapers, land court testimonies, oral history interviews, missionary accounts, government records, and archaeological studies. Their holistic approach to documenting the cultural landscape of Ka'eo provides a solid foundation for understanding how this place has evolved over time while maintaining connections to its indigenous heritage.

3.2.1 Development of the Ahupua'a System

Over the period of several generations following settlement, the Hawaiians began to develop a sophisticated system of land- and resource-management practices, that were integrated into natural cycles of the environment around them. By ca. 1500, in the time of Kāka‘e and Kaka‘alaneo, the island (moku-puni) of Maui was divided into some eleven or twelve major districts (moku-o-loko), and smaller subdivisions, which were handed down through time. These (moku-o-loko or moku) included Honua‘ula, Kula, Lāhaina, Kā‘anapali, Nāpoko or Wailuku, Hāmākua Poko, Hāmākua Loa, Ko‘olau, Hāna, Kīpahulu, Kaupō, and Kahikinui. Some of these large districts were subdivided into smaller ‘okana or kalana (regions of land smaller than the moku-o-loko) yet comprising a number of smaller units of land (Lyons, 1875; Coulter, 1935).

The large districts (moku-o-loko) and sub-regions (‘okana and kalana) were further divided into manageable units of land, and were tended to by the maka‘āinana (people of the land). Of all the land divisions, perhaps the most significant management unit was the ahupua‘a. Ahupua‘a are subdivisions of land that were usually marked by an altar with an image or representation of a pig placed upon it (thus the name ahu-pua‘a or pig-altar). In their configuration, the ahupua‘a may generally be compared to wedge-shaped pieces of land that radiate out from the center of the island, extending to the ocean fisheries fronting the land unit. Their boundaries are defined by topographic or geological features such as pu‘u (hills), ridges, gullies, valleys, craters, or areas of a particular vegetation growth (cf. Malo, 1951, pp. 16-18; Lyons, 1875).

The ahupua‘a were also divided into smaller, manageable arable parcels of land (such as the ‘ili, kula, kō‘ele, māla, kīhāpai, mo‘o, and paukū). Generally, these small land units ran in a mauka-makai orientation and were often marked by stone wall alignments. In these smaller parcels, the native tenants tended fields and cultivated crops necessary to sustain their immediate families and the chiefly communities with which they were associated. As long as sufficient ho‘okupu (tribute) was offered and kapu (prohibitions) were observed, the common people living in a given ahupua‘a had access to most of the resources from mountain slopes to the ocean. These access rights were almost uniformly tied to residency on particular land and earned as a result of taking responsibility for stewardship of the natural environment and supplying the needs of one’s ali‘i (Malo, 1951, pp. 63-67; Kamakau, 1992).

Entire ahupua‘a, or portions of the land were generally under the jurisdiction of appointed konohiki (lesser chief-landlords) who answered to an ali‘i-‘ai-ahupua‘a (chief who controlled the ahupua‘a resources). The ali‘i-‘ai-ahupua‘a in turn, answered to an ali‘i ‘ai moku (chief who claimed the abundance of the entire district). Thus, ahupua‘a resources supported not only the maka‘āinana and ‘ohana (families) who lived on the land but also contributed to the support of the royal community of regional and/or island kingdoms. This form of district subdividing was integral to Hawaiian life and was the product of strictly

adhered to resources management planning. In this system, the land provided fruits and vegetables, and some meat in the diet, and the ocean provided a wealth of protein resources. Also, in communities with long-term royal residents, divisions of labor (with specializing in various occupations on land and in the procurement of marine resources-were strictly observed (Malo, 1951, pp. 63-67).

The ahupuaʻa of Kaʻeo is part of the larger Honuaʻula moku, which encompasses several ahupuaʻa along the southwestern slope of Haleakalā (Maly & Maly, 2005, p. 2). The boundaries of Kaʻeo were defined by natural features and marked by pōhaku (stones) at key points along its borders with neighboring ahupuaʻa such as Moʻoiki, Moʻoloa, and Papaka Kai. These traditional boundary markers, some of which were documented during kingdom-era land surveys, played a crucial role in delineating resource rights and jurisdiction within the indigenous land management system. Some of these boundary markers were recorded in the testimonies provided during the Māhele process, providing a glimpse into the traditional landscape organization (Maly & Maly, 2005, p. 4).

Mākena, located in the Honuaʻula district of Maui, was once a thriving Native Hawaiian village deeply rooted in the ahupuaʻa system, a sophisticated and sustainable land management practice. Mākena is not unto itself an ahupuaʻa. The ahupuaʻa of Kaʻeo, which encompassed the coastal and upland regions of Mākena, provided the foundation for a self-sufficient community that harmonized with its natural environment. In Kaʻeo, the coastal regions provided abundant marine resources, including fish, limu (seaweed), and shellfish, while the fertile uplands supported the cultivation of dryland crops such as ʻuala (sweet potato) and kalo (taro). Freshwater springs like ʻAʻawa played a critical role in sustaining both agriculture and the population, particularly during dry seasons.

3.2.2 Natural Environment

The physical geography of Kaʻeo and the greater Mākena area is characterized by a diverse landscape. The region features a generally arid climate with intermittent seasonal rainfall. The shoreline consists of sandy beaches and rocky outcroppings, while the uplands gradually ascend toward the slopes of Haleakalā. This varied terrain supported different types of traditional Hawaiian subsistence activities, with fishing and marine resource gathering along the coast and agricultural pursuits in the upland areas.

Geologically, the region is characterized by relatively young lava flows from Haleakalā, resulting in a landscape of ʻaʻā (rough) and pahoehoe (smooth) lava surfaces interspersed with patches of deeper soil suitable for cultivation. The coastline features several small bays and inlets, including the area now known as Mākena Landing, which provided access points for canoes and rich fishing grounds. Offshore, a fringing reef system

supports diverse marine resources that form a crucial component of the traditional subsistence economy (Maly & Maly, 2005, p. 5).

Freshwater resources, although limited compared to the windward regions of Maui, played a crucial role in the settlement patterns of Kaʻeo. The area features several traditional water sources, including pūnāwai (springs), intermittent streams, and locations where rainfall is collected in natural depressions. These water sources facilitated human habitation in an otherwise arid region and supported agricultural activities. Some springs near the coastline created brackish environments that were used for specific types of aquacultures, demonstrating the sophisticated environmental knowledge of traditional Hawaiian communities (Maly & Maly, 2005, p. 6). The importance of these water resources is further discussed in **Section 4.2.3 (Water Resources)**.

During periods of dry weather, the uplands residents relied upon the near-shore water sources. When the native forests were of greater scope, and extended further down the mountain slopes—in the centuries prior to the introduction of foreign cattle and other ungulates that destroyed vast forest regions—the kēhau (early morning dew), born on breezes from the mountain slopes, could be relied upon on a daily basis to keep native crops in the uplands (generally between the 2,000 to 4,000 foot elevation) supplied with water for regular growth (Handy, 1940).

Vegetation across the landscape was varied, and the land received approximately 20 to 30 inches of rain annually, with the rainfall increasing in the upper reaches of the ahupuaʻa. Based on interviews and field observations, the lowlands were once vegetated with such native- and Polynesian-introduced plant species as—ʻāhinahina, hala, hau, ʻilima, kou, maiapilo, milo, naupaka, niu, pili, ʻuhaloa, puakala, and wiliwili. Some species were confined to the near shore region, while others like naio, ʻōhiʻa, māmane, kukui and other species extended far to the mountain lands.

It is likely that prior to the introduction of cattle, goats, and other ungulates, and extreme modifications in land use and environmental conditions, a wide range of native plants once grew at various elevational zones of Honuaʻula. Today, the predominant tree growth is the introduced kīawe; with scattered pānini (an introduced cactus); the introduced koa haole; and ground cover comprised of alien grasses, with scattered ʻilima and ʻuhaloa, and the endemic wiliwili (*Erythrina sandwicensis*).

The native vegetation of Kaʻeo and surrounding areas was adapted to the arid conditions, with plant communities varying based on elevation and proximity to the coast. Traditional accounts mention various native plant species that were utilized for food, medicine, building materials, tools, and ceremonial purposes. The pre-contact vegetation regime was significantly altered by introduced species and land use changes following Western

arrival, though certain indicator species provide insights into the original plant communities of the region (Maly & Maly, 2005, p. 7). Makena was a vibrant traditional Hawaiian village, where the people practiced a subsistence lifestyle guided by a deep connection to the land and ocean.

Fishing was central to life in Makena. Fishermen employed traditional techniques, including kilo iʻa (fish observation), to study fish behavior and migration patterns. They built loko iʻa (fishponds) to ensure a sustainable harvest, and koʻa (fishing shrines) were maintained as sacred sites where prayers and offerings were made to Kūʻula, the Hawaiian god of fishing. These practices ensured that resources were used responsibly, allowing the community to thrive without depleting the ecosystem. Kilo practices are further discussed in **Section 6.7 (Kilo)** and fishing practices are further discussed in **Section 6.13 (Fishing, Spearfishing, and Limu Picking)**.

The uplands of Kaʻeo were equally important. Dryland farming systems supported the cultivation of staple crops, with families managing their plots communally. The villagers also gathered medicinal plants and other resources from the forests. The integration of agricultural and fishing practices within the ahupuaʻa reflected the Hawaiian worldview of interconnectedness, or aloha ʻāina (love and respect for the land). This philosophy underscored all aspects of life in Makena, where the health of the land and ocean directly correlated with the well-being of the people. Farming practices are further detailed in **Section 6.4 (Farming)**.

Spiritual practices were woven into the daily lives of Makena's residents. Sacred sites, such as heiau and koʻa, were used for ceremonies that honored the gods and sought their guidance. One such site was Kalani Heiau, located within the ahupuaʻa of Kaʻeo. While much of its history has been lost, it is believed to have been associated with fishing rituals and the spiritual well-being of the community. Oral traditions and archaeological findings have helped preserve fragments of its significance. Spiritual practices, as well as other ceremonial traditions, are further discussed in **Section 6.8 (Ceremonial Practices)**.

Makena's residents were skilled navigators and artisans. Canoe-building and toolmaking were common activities, with materials sourced sustainably from the surrounding environment. (Paddling and canoe-related traditions are further detailed in **Section 6.14: Paddling**.) Families lived in hale pili (houses made from pili grass) and passed down knowledge through oral traditions, ensuring that cultural practices and values were perpetuated across generations. As a central hub of residence and cultural practice in Honuaʻula, Makena's history is closely tied to that of the larger moku of Honuaʻula.

3.2.3 Ka Hoʻonoho Moku–Hawaiian Settlement of the Islands

Archaeologists and historians describe the inhabiting of the Hawaiian Islands in the context of settlement, which resulted from voyages taken in canoes across the open ocean. Archaeologists have proposed that early Polynesian settlement voyages between Kahiki (the ancestral homelands of the Hawaiian gods and people) and Hawai‘i were underway by ca. 400 A.D., with long distance voyages occurring fairly regularly through at least the thirteenth century (cf. Cordy, 2000). It has been generally reported that the island homes of the early Hawaiian population—the Hawaiian “Kahiki”—were the Marquesas and Society Islands (Emory in Tatar, 1982, pp. 16-18). Indeed, Kahikinui, the district neighboring Honua‘ula to the south, is named because from afar on the ocean, it resembled a larger form of Kahiki, the ancestral homeland.[6]

For several generations following initial settlement, communities were clustered along the watered, ko‘olau (windward) shores of the Hawaiian Islands. Along the ko‘olau slopes, streams flowed and rainfall was abundant, and agricultural production became established. The ko‘olau region also offered sheltered bays from which deep-sea fisheries could be easily accessed, and near shore fisheries, enriched by nutrients carried in the fresh water, could be maintained in fishponds and coastal fisheries. It was around these bays that clusters of houses where families lived could be found, and in these early times, the residents generally engaged in subsistence practices in the forms of agriculture and fishing (Handy et al., 1972, p. 287).

With the passing of time (ca. A.D. 800 to 1000), the ko‘olau region became more populated and perhaps crowded, and the Hawaiians began expanding out to and settling more remote areas, which had not been the first choices for settlement—based primarily on access to water. These kona (leeward) lands, like those of Honua‘ula moku, offered residents sheltered coves, rich fisheries, and access to forested uplands, where agricultural endeavors could be supported, and natural resources could be collected (cf. Haun & Henry, 2004).

Archaeological evidence suggests human settlement in the Mākena region dates back several centuries, with some of the earliest radiocarbon dates indicating Hawaiian presence by at least the 13th century. The archaeological record reveals a pattern of settlement that took advantage of the region’s natural resources, with habitation sites concentrated along the coastline and in areas with access to fresh water (Maly & Maly, 2005, p. 5). The settlement pattern of Ka‘eo reflected adaptations to local environmental conditions.

The documented archaeological sites include permanent habitation complexes, temporary fishing camps, agricultural features, religious structures, and burial areas. This

[6] “*Kaao Hooniua Puuwai no Ka-Miki*” (The Heart Stirring Story of Ka-Miki), published in the Hawaiian language newspaper *Ka Hoku o Hawaii* from 1914 to 1917

diversity of site types indicates a complex society that utilized resources from multiple ecological zones within the ahupua‘a system. Habitation sites were strategically positioned to balance access to marine resources, agricultural lands, and freshwater sources (Maly & Maly, 2005, p. 8).

Traditional Hawaiian cultural development in Ka‘eo and Mākena reflected adaptations to the local environment. Despite the relatively arid conditions of South Maui, Hawaiian settlers developed sophisticated agricultural systems. In upland areas, they cultivated sweet potatoes and dryland taro using techniques suited to the rainfall patterns and soil conditions of the region. Closer to the shore, coconut groves provided additional food resources (Maly & Maly, 2005, p. 6).

The ocean was a crucial resource for the traditional residents of Ka‘eo. Numerous fishing grounds were located off the Mākena coastline, each known for specific types of fish. Hawaiian fishing practices in the area were governed by traditional knowledge of lunar cycles, seasonal patterns, and resource management principles that ensured sustainable harvest of marine resources. Ko‘a were constructed at key locations along the coast where ceremonial offerings were made to ensure continued abundance (Maly & Maly, 2005, pp. 8-10).

Marine resource harvesting extended beyond fishing to include gathering of limu, honu (turtle), and various shellfish species. Specific harvesting locations along the Ka‘eo coastline were known for particular marine resources. TEK guided these harvesting activities, with specific protocols determining when, where, and how resources could be collected to ensure their continued abundance. This knowledge was passed down through generations, creating an accumulated body of environmental wisdom that facilitated sustainable resource use (Maly & Maly, 2005, p. 11).

The material culture of Ka‘eo's residents reflected both the available local resources and connections to broader Hawaiian cultural patterns. Archaeological investigations have recovered artifacts including fishing implements, stone tools, ornaments, and pottery that indicate participation in island-wide cultural traditions while also showing local adaptations. The presence of materials from other parts of Maui and potentially from other islands suggests that Ka‘eo's residents participated in exchange networks that connected communities across the archipelago (Maly & Maly, 2005, 12).

Social organization in traditional Ka‘eo likely followed patterns common throughout pre-contact Hawai'i, with communities organized around extended family groups (‘ohana) who collectively managed resources within the ahupua‘a system. While the report does not extensively document the specific social dynamics of Ka‘eo, land use patterns suggest a society with hierarchical elements (reflected in the presence of religious structures

associated with the elite classes) but also with substantial local community management of resources (evidenced by the distributed pattern of habitation and agricultural features) (Maly & Maly, 2005, 13).

3.2.4 Inoa ʻĀina (Place Names)

Honuaʻula (literally, Red-land or earth) is comprised of some twenty traditional ahupuaʻa, of which Paeahu is one. Fisheries—both near shore and in the deep sea—were also highly valued and managed. Though surface water was scarce—except for times of the Nāulu (southerly rain squalls)—potable water could often be found in ponds and springs near the shore. Among the named localities along the shore, known water sources are Waiaʻīlio, Waiala, Waiʻāpuka, Wai ʻAʻawa, Waipao, and Waileʻa; while in the Nupawai o Kukui o Piʻikea (above the 3,000 foot elevation), Waihou and Polipoli, still higher, are among the names that commemorate places where water was found.

The cultural landscape of Kaʻeo and Mākena is further revealed through the rich tapestry of place names preserved in oral traditions, chants, and historical documents. Maly and Maly's (2005) research uncovered numerous traditional place names within the ahupuaʻa, each carrying specific meanings that often referenced physical features, historical events, or resource characteristics (p. 18).

The name "Mākena" itself has been interpreted as "abundance," or alternatively "Makena" as "mourning," with differing traditional accounts explaining the origin of the name. One interpretation suggests that the abundance of marine resources in the area led to the name, while another account links it to a historical incident of great sadness or loss. This multiplicity of meanings reflects the layered nature of Hawaiian place names, which often carried multiple connotations and references that would be understood differently depending on the context and the knowledge of the listener (Maly & Maly, 2005, p. 20).

Maly & Maly (2005) document dozens of specific named locations within Kaʻeo and surrounding areas, creating a detailed indigenous cartography that embedded cultural knowledge directly in the landscape. These names referred to a variety of features including specific sections of coastline, fishing grounds, hills, plains, cultivation areas, water sources, and pathways. The density of place names indicates the intimate relationship between the Hawaiian community and their environment, with virtually every significant feature of the landscape incorporated into cultural consciousness through naming.

Some recorded place names referenced deities or legendary figures, connecting the physical landscape to the realm of mythology and ancestral narratives. Others described environmental characteristics, such as prevailing winds, water conditions, or plant communities. Still others commemorated historical events, ranging from battles to visits

by ali‘i (chiefs) and notable natural occurrences. This layering of references created a landscape rich in meaning, where physical geography and cultural memory were inextricably intertwined (Maly & Maly, 2005, p. 22).

Coastal features received particularly detailed naming, reflecting their importance in a community where marine resources played a crucial subsistence role. Individual sections of reef, underwater channels, fishing grounds, and coastal access points all carried specific names that communicated their characteristics and significance. These names served practical purposes as navigational aids and resource identifiers, while simultaneously preserving historical associations and cultural knowledge about each location (Maly & Maly, 2005, p. 23).

Water sources, particularly crucial in this relatively arid region, received special attention in traditional place naming. Springs, intermittent streams, and water collection areas were carefully named and remembered in oral tradition, underscoring their vital importance to human settlement in the area. The names often described the quality of water, its reliability across seasons, or historical incidents associated with the location (Maly & Maly, 2005, p. 22). Place names also served to mark boundaries between different land divisions and resource jurisdictions. Named boundary points helped define the limits of ahupua‘a and smaller land units, establishing the framework for traditional resource management and political organization. These boundary markers were committed to memory and passed down through generations, ensuring continuity in land stewardship and resource rights.

The cultural geography of Ka‘eo was further defined by networks of trails that connected different areas within the ahupua‘a and linked the community to neighboring regions. The report documents several traditional trail systems, including coastal paths that facilitated fishing and gathering activities, mauka-makai trails that connected different resource zones, and regional trails that linked Ka‘eo to other parts of Honua‘ula and beyond. These physical connections facilitated the movement of people and goods, enabling the integrated resource management that characterized the ahupua‘a system (Maly & Maly, 2005, p. 25).

Mo‘olelo associated with specific locations in Ka‘eo added another layer to the cultural landscape. These narratives, some of which were recorded in Hawaiian language newspapers and oral history interviews, connected physical places to legendary events, divine interactions, and historical occurrences. Through these stories, the landscape became a repository of cultural memory, with geographical features serving as mnemonic devices that helped preserve and transmit knowledge across generations (Maly & Maly, 2005, p. 26).

The retention and transmission of place names and their associated knowledge occurred through various cultural mechanisms, including oli, genealogies, and practical instruction in resource gathering and land management. There are examples of traditional oli that incorporate place names from Kaʻeo and surrounding areas, demonstrating how cultural geography was preserved through these formal verbal arts (see **Section 4.3.2: Mele** and **Section 6.9: Haku Mele, Haku Oli, and Hula**). Family traditions and specialized knowledge about particular locations were passed down through direct teaching and observation, ensuring continuity in cultural understanding of the landscape (Maly & Maly, 2005, p. 27). Examples of these family histories and traditions are exemplified in the ethnographic data of **Section 5.0**.

3.2.5 Governance During the Traditional Period

It is best to begin a genealogy of Maui's chiefs with Moʻoinanea, who appears in numerous moʻolelo throughout Hawaiian history. She is considered "the matriarch of all moʻo [(lizard)] gods and goddesses" (Pukui & Elbert, 1986, p. 394). Accounts detail her arrival from Kahiki "with the Kū and Hina family of gods" and that she was "the ancestor of the ʻUlu / Hemo linage of Maui" (Klieger, 1998, p. 8). Klieger (1998) explains:

> One of [Moʻoinanea's] descendants was Kelea (Keleanuinohoʻanaʻapiʻapi), a Maui chief and famous surfer of married Kalamakua, a prominent chief on Oʻahu. Maui was not yet a unified kingdom at the time, but soon the moʻo would be evoked for the unification of the island, and then the entire archipelago. Kelea was the daughter of Kahekili I, the alii nui of the kingdom of West Maui, and his wife Haukanuimakamaka. The moʻo lineage was most likely introduced through Kelea's mother. Kelea's paternal grandfather and great uncle were Kakaʻe and Kalaʻalaneo, alii nui of the Wailuku line who ruled West Maui and Lanai from Lele/Lahaina in the sixteenth century. (p. 8)

After Kahekili I passed, Kelea's brother, Kawaokaohele, gained control over his kingdom. Kawaokaohele was a popular aliʻi and the reign is known for its prosperity. Most importantly, it was during the reign of Kawaokaohele that East Maui (i.e., Hana) recognized the Wailuku aliʻi as being mōʻī (King) of Maui (Klieger, 1998, pp. 8-9).

Kawaokaohele's son, Piʻilani, is widely acknowledged to this day to be the greatest aliʻi in Maui's history. He ruled all of Maui from his base at Lahaina, which would eventually become the political center of the island and later the unified Hawaiian Kingdom. Piʻilani is known for creating a trail that circumnavigated the entire island (Klieger, 1998, p. 9). Piʻilani married his first cousin, Laieloheloheikawai, daughter of Kelea. Piʻilani and Laieloheloheikawai had at least four children: daughter Kihawahine Mokuhinia Kalamaula

Kalaaiheana, daughter Piʻikea, son Lono-a-Piʻilani,[7] and son Kiha-a-Piʻilani. These children, being the result of a piʻo union (marriage between two close relatives, sometimes a brother and sister), had a very strong lineage.

Upon her death, it is believed that Kihawahine transformed into a moʻo and became a guardian of sacred places on Maui, most notably fishponds, some of which bear her names. M.K. Pukui said that her home was Mauʻoni fishpond, located in Kahului (Klieger, 1998, p. 9), yet it is also said that Kihawahine possessed the ability to travel between islands and fishponds (Klieger, 1998, p. 9). Many fishponds to this day are associated with a moʻowahine (female lizard deity) that protects the pond. It is likely that this continued existence of moʻo deities originated with Kihawahine. For additional discussion on moʻo, see **Section 6.1.1 (Moʻo Traditions)**.

Historians estimate that Piʻilani ruled in the 16th century. It is important to note that Hawaiian chiefs demonstrated considerable savvy in politics. Chiefs commonly intermarried for political reasons. Piʻikea-a-Piʻilani, daughter of Piʻilani, married Umi-a-Liloa, the King of Hawaiʻi Island. When Piʻilani died, the Maui Kingdom went to his oldest son, Lono-a-Piʻilani. For many years, Lono-a-Piʻilani and his younger brother Kiha-a-Piʻilani (brothers to Piʻikea) co-existed peacefully. Eventually, Lono-a-Piʻilani and Kiha-a-Piʻilani had a falling out and the latter feared his brother, the King, would try to kill him, so Kiha-a-Piʻilani fled and lived on Lānaʻi. He eventually returned and stayed in the southern parts of Maui, as to not be found by his brother. His identity was eventually discovered, and he traveled to Hawaiʻi Island to stay with his sister, Piʻikea-a-Piʻilani and her husband, ʻUmi-a-Liloa (Kamakau, 1992, pp. 23-27). Kiha-a-Piʻilani joined with ʻUmi-a-Liloa, and together they planned to invade Maui. Lono-a-Piʻilani resided in Wailuku during this time.

Kiha-a-Piʻilani and ʻUmi-a-Liloa successfully invaded and conquered East Maui. Before they could reach Lono-a-Piʻilani in Wailuku, Lono-a-Piʻilani died. A prophet told Kiha-a-Piʻilani that the body of Lono-a-Piʻilani was “in Wailuku in a land called Paʻuniu” (Kamakau 1992: 31). Despite a wide search throughout Wailuku, the bones of Lono-a-Piʻilani were never found by Kiha-a-Piʻilani.

Kiha-a-Piʻilani ruled Maui in the 17th century. During ʻUmi-a-Liloa’s reign of Hawaiʻi Island, the two kingdoms remained close and peaceful thanks to the intermarrying of the chiefly families. It would be this history of strategically intermarrying that would help to engender the eventual unification of the islands. Kiha-a-Piʻilani’s descendant, Kekaulike, would become the Mōʻī of Maui in the 18th century.

[7] Children often bore the name of an ancestor, so names such as Lono-a-Piʻilani mean “Lono of Piʻilani.” Whenever historical figures’ names have this element, the name has been broken up with dashes in this report to help the reader follow genealogies and familial relationships.

As Kekaulike ruled on Maui, Keawe was a famed ruler on Hawai‘i Island (Kamakau, 1992, p. 64). Keawe’s half-sister was Ka-lani-kau-lele-ia-iwi, whose husband was Ka-uaua-nui-a-Mahi and to them was born Alapa‘i-nui-a-Kauaua (Alapa‘i) (Kamakau, 1992, p. 64). Kamakau (1992) notes that Keawe enjoyed travel and would travel to the other islands, including Maui. When Keawe died, he left Kohala and Kona to his son Ke‘eaumoku and Ka‘u to his son Kalaninui‘iamamao (Kamakau, 1992, p. 64).

Alapa‘i also lived on Maui during this time, moving there after Hilo chiefs killed his father, Ka-uaua-nui-a-Mahi. Alapa‘i’s half-sister, Keku‘iapoiwanui-a-Kalaninuikauleleiaiwi (Keku‘iapoiwanui), was the wife of Kekaulike (Kamakau, 1992, p. 65). After Keawe’s death, Alapa‘i returned to Hawai‘i Island. He first waged war against Ke‘eaumoku and gained control of Kohala and Kona. Kekaulike did not approve of this and took his own warriors to fight with Alapa‘i on Hawai‘i Island. Kekaulike was unsuccessful in this battle, and he slaughtered numerous commoners during his campaign in Kohala (Kamakau, 1992, pp. 65-66). Alapa‘i then unsuccessfully launched a campaign against Kekaulike on Maui.

Kekaulike had four biological children with his wife, Keku‘iapoiwanui: Kalola (wahine (female)), Kamehamehanui (kāne (male)), Kahekili II (kāne), and Kahu‘aimokuakama (wahine). Kalola bore children with three different men: Kalanikauōkikilokalaniakua (wahine) with her brother Kamehamehanui, Kīwala‘o (kāne) through her union with Kalani‘opu‘u, and Keku‘aipoiwa Liliha (wahine) from her union with Keōua. Kalanikauōkikilokalaniakua had many kapu on her due to her being the result of a pi‘o union between siblings, which Hawaiians believed gave a child a sacred status. Kalani‘opu‘u and Keōua are two sons of Keawe, both of which Alapa‘i brought up as leaders in his government.

Keōua had many wives. In addition to Kalola, he also married Keku‘aipoiwa, daughter of Kekela and Ha‘ae (not to be confused with Keku‘aipoiwa Liliha, daughter of Kalola, or Keku‘aipoiwanui, wife of Kekaulike). Keōua and Keku‘aipoiwa would become the parents of Kamehameha I (kāne), who was born as Alapa‘i launched his attack against Kekaulike on Maui.

Alapa‘i was a peaceful and prosperous chief; additional war between the two kingdoms of Maui and Hawai‘i Island was avoided for a period of time. On Maui, Wailuku had been the central location of power since the time of Pi‘ilani. Kekaulike moved it to Kaupō, likely in preparation of attacks on Hawai‘i Island. Kekaulike fell ill and never returned to Hawai‘i Island. Kekaulike turned over Maui to his son, Kamehamehanui (not to be confused with Kamehameha I).

In anticipation of an attack from Alapai’s forces, the weakened Kekaulike directed his family and governing officials to return to Wailuku, to Haleki‘i, “the royal residence of the

Maui ruling line near Wailuku" (Kirch, 2012, p. 240). There, Kekaulike died and after his death, "fearing the arrival of Alapa'i bent on war, the chiefs cut the flesh from the bones of Ke-kau-like in order to lighten the load in carrying the body to 'Iao" (Kamakau, 1992, p. 69).

Alapa'i arrived on Maui as anticipated. Yet, when Alapa'i heard of Kekaulike's death and of Kamehamehanui's rule, he relinquished his planned attack on the island and opted for peace between the kingdoms.

Kahekili II, the second son of Kekaulike, would become one of Maui's most famed ali'i. He was known to be a ferocious warrior and a staunch follower of the Hawaiian religious beliefs and protocols. He kept individuals for sacrifice at a place called Pua'anui, near the site of the Wailuku mill (Thrum, 1917, p. 60). It was during Kahekili II's reign that the great battle at Kakanilua occurred. Joseph Mokuohai Poepoe (1905, in Sterling, 1998) wrote of this great battle in Hawaiian language newspapers:

> As the Alapa[8] and Piipii proceeded to the plain of Kamaomao [from Kihei-puko'a] they met with no hindrance until they reached the southeastern side of a place called Kalua, close to the village of Wailuku.
>
> When the Alapa arrived there, the warriors of Kahekili concentrated upon them from many points, like sandcrabs running over the sand.
>
> A bitter fight was fought by the Alapa and Piipii armies of Kalaniopuu against the well trained warriors of Maui and those of Oahu under Kahahana…
>
> Kalaniopuu received the news on the evening of the day of the terrible battle. This battle in which the Alapa and Piipii were destroyed was called Ahulau ka Piipii i Kakanilua (completely slaughtered were the Piipii at Kakanilua). (p. 88)

Keku'aipoiwa Liliha (daughter of Keōua and Kalola) and her half-brother Kīwala'ō married and this nī'au pi'o union resulted in the birth of Keōpuōlani (wahine). Due to the half-sibling relationship between her parents and her royal lineage, Keōpuōlani was a chiefess of substantial status and rank. While Kamehameha I would eventually take many wives, none held as high a sacred status as Keōpuōlani and she would become known as Kamehameha's sacred wife. It is through their children, Liholiho (kāne), Kauikeaouli (kāne), and Nahi'ena'ena (wahine), that the Kamehameha Dynasty was established.

[8] "Alapa" in this case references the famed warrior company of Kalani'opu'u. The spelling of the term with diacritics is 'ālapa.

3.2.6 Early Chiefly Residents of Honua‘ula

Based on genealogical references, the association of ancient chiefs with the lands of Honua‘ula pre-date 1000 A.D. Preeminent Hawaiian scholar, David Malo—who in the 1840s, was also tied to the land of Paeahu and other localities in Honua‘ula—recorded events associated with the lives of various chiefs and their genealogies. One such account from Malo (1951), reported that the chief, “Aikanaka…died at Oneuli, Puuolai, Honuaula, and his bones were laid to rest at Iao…” (p. 246).

Abraham Fornander, who oversaw schools and served in the courts of the Kingdom, was married to a native woman of chiefly rank from Moloka‘i. Fornander took a keen interest in Hawaiian traditions and history, and among the accounts he collected was one which attributed the construction of the fishpond at Keone‘ō‘io to an early chief from the island of Hawai‘i (Fornander, 1919):

> Kauholanuimahu went to Honuaula, Maui, to reside, and while there he built the *loko* (fishpond) at Keoneoio. While he was living on Maui his wife remained on Hawaii and took another husband who revolted against Kauhola, who returned to Hawaii, beat his opponent and retook the government. (Vol. VI-2, p. 320)

Such accounts as those above, though brief, are followed by additional narratives, also cited in this study, of chiefly associations with lands of the Honua‘ula region. With these godly and chiefly events in history, we understand that a wide range of traditional sites, such as heiau, high-status residences, house sites of the native population, agricultural field systems, trails, wahi ilina (burial sites), and other sites are found across the land.

Mo‘olelo is the practice of storytelling and developing oral histories for the purpose of transmitting knowledge information and values intergenerationally. Mo‘olelo are particularly critical in protecting and preserving traditional culture in that they are the primary form through which information was transmitted over many generations in the Hawaiian Islands and particularly in the Native Hawaiian community. In a collection of essays about mo‘olelo, professors C.M. Kaliko Baker and Tammy Haili‘ōpua Baker (2023) explain:

> *Mo‘olelo*, loosely translated as stories and histories, are the *kūkulu* “pillars” that shoulder and chronicle Kanaka Maoli narratives and beliefs. The mo‘o, or successions, of *‘ōlelo* “words” are the foundation for the many genres of mo‘olelo which collectively represent the prowess of the Kanaka Maoli literary canon. (p. 2)

Storytelling, oral histories, and oration are widely practiced throughout Polynesia and important in compiling the ethnohistory of the area. The Native Hawaiian newspapers were particularly valued for their regular publication of different mo‘olelo about native

Hawaiian history. Were it not for the newspapers having the foresight to allow for the printing and publication of moʻolelo, far less information about the cultural history of the Hawaiian people would be available today.

3.2.6.1 Kiha-a-Piʻilani Lives in Hiding at Honuaʻula

Native historian Samuel M. Kamakau published a lengthy series of articles in the native language newspapers *Nupepa Kuokoa* and *Ke Au Okoa* in the 1860s and 1870s. Among the traditions he recorded was that of the famous Maui chief, Kiha-a-Piʻilani, who for a time lived in hiding at various localities, including at Honuaʻula (ca. mid 1500s). The following excerpts from Kamakau's (1992) texts were translated by M. Kawena Pukui:

> Piʻi-lani died at Lahaina, Maui, and the kingdom of Maui became Lono-a-Piʻi-lani's. He was Piʻi-lani's oldest son by Laʻie-lohelohe-i-ka-wai. Next to him came Piʻi-kea, then Ka-la-ʻai-heana and Kiha-a-Piʻi-lani. It was said that there were two heirs to the kingdom, Lono-a-Piʻilani and Kiha-a-Piʻi-lani, but the latter was not present at their father's death because Oahu was his birthplace, and there he was reared. Therefore the government went to Lono-a-Piʻi-lani. Piʻi-lani had commanded that the kingdom be his, and that Kiha-a-Piʻi-lani dwell under him in peace. In the first years of Lono-a-Piʻi-lani's reign all was well, and the people were content.
>
> Lono-a-Piʻi-lani took care of Kiha-a-Piʻi-lani, and the latter cared for the people by giving them food. Lono-a-Piʻi-lani became angry, for he felt Kiha-a-Piʻi-lani was doing it to seize the kingdom for himself… Lono-a-Piʻi-lani sought to kill Kiha, so he fled in secret to Molokai… (p. 22)

Kamakau (1992) reported that Kiha-a-Piʻilani later fled to Lānaʻi:

> From Lanai he sailed and landed at Kapoli in Maʻalaea and from thence to the upland of Honuaʻula. He was seen, and the matter was reported to Lono-a-Piʻi-lani, the enemy who greatly desired his death. When it was heard that he was in Lahaina, swift runners were sent to seek and kill him, but the mana of his prayers and the help of the god saved him.
>
> He and his wife descended by the rocky gulch of Kuanuʻu and went around to the back. They lived on the charity of others at the boundary of Honuaʻula and Kula, at a place named Keʻekeʻe. They lived with farmers in the remote country, and because of their poverty-stricken state, neither he nor his wife had any clothing. They had nothing and had no means of making coverings for their bare bodies, and so an idea came to Kiha-a-Piʻi-lani to seek ways of getting them some tapa cloth. Kiha-a-Piʻi-lani went to steal an anvil, a tapa beater, and beater for finishing, to help in making tapa. They had nothing at all. After Kiha-a-Piʻi-lani had stolen the anvil and other

implements for tapa-making, his wife made some skirts and coarse red malos for him, but they were poorly made. He and his wife were young, handsome, with perfect physique, but they were favorite chiefly children, unaccustomed to such work. They were undergoing a bitter experience in order to appreciate the blessings they were to receive in the future. They lived in poverty, but knew of the blessings to come. Thus it was that the ancestors of chiefs and commoners knew what it was to be without. His tapa-beating anvil was called "*puka helelei*" or "hole through which things fell out." The owners of the stolen anvil accused him, and feeling ashamed he and his companion went away in secret and lived close to the boundary of Kula and Makawao… (22-23)

3.2.6.2 The Tradition of Lāʻieikawai

In the generation following Kiha-a-Piʻilani, there was born a sacred chiefess of godly rank, by the name of Lāʻie-i-ka-wai (ca. early to middle 1500s). Her mother was Piʻikea, the daughter of Piʻilani. In 1862, S.N. Haleole published the account of this chiefess, and in it, observed that for a time the chief, ʻAiwohikupua, a suitor of Lāʻie-i-ka-wai resided at Keoneʻōʻio—waiting for the ocean to calm before the canoe fleet could cross to Hawaiʻi Island. Of the event, Haleole (1862) wrote:

> …pae i Mala, ma Lahaina, a haalele lakou ia wahi, hiki lakou i Keoneoio, ma Honuaula, a malaila i noho loihi ai ekolu anahulu. No ka mea, ua nui ka ino ma ka moana, a pau na la ino, alaila, ua ikeia mai ka maikai o ka moana. Ia manawa ko lakou haalele ana ia Honuaula, a holo aku la a hiki ma Kaelehuluhulu, ma Kona, Hawaii… (p. 1)
>
> …Having landed at Māla, at Lāhaina, they then departed from that place and arrived at Keoneʻōʻio, in Honuaʻula. There, they resided for a period of three *anahulu* (ten days to each *anahulu*, totaling thirty days). They did this because the sea was extremely rough. When the stormy days ended, they saw the ocean was good, and they then departed from Honuaʻula, and sailed on, until they arrived at Keʻelehuuluhulu, in Kona, Hawaiʻi… (Maly, translator)

3.2.6.3 The Tradition of Pikoiakaʻalalā

In the tradition of Pikoi-a-ka-ʻalalā (Pikoi-son-of-the-crow), there is another reference to Honuaʻula and the Keoneʻōʻio vicinity as a resting place for canoes traveling to the island of Hawaiʻi. Based on the genealogical references, the events described in this tradition took place sometime in the middle to late 1500s. The tradition was printed in the Hawaiian language newspaper, *Ka Nupepa Kuokoa*, having been submitted to the paper by S.M. Kaui (December 16th, 1865 to March 10th, 1866).

Pikoi-a-ka-ʻalalā was born to ʻAlalā and Koukou on the island of Kauaʻi, and his family were kūpua (beings with supernatural powers and multiple body-forms). Pikoi-a-ka-ʻalalā possessed exceptional sight and excelled in the Hawaiian art of pana pua (shooting with bow and arrow). Through the tradition of Pikoi-a-ka-ʻalalā (Pikoi), readers learn that many localities throughout the islands are named for places where he competed in matches with archers, shooting ʻiole (rats) and birds from great distances. During part of the journey, Pikoi was accompanied by a supernatural dog by the name of Puapualenalena. In the narratives below, Kaui (1866) describes the journey taken by Puapualenalena around the island of Maui, and references various localities in the district of Honuaʻula; also noting that the chiefly canoes sailed from Honuaʻula to Hawaiʻi:

> A mawaho ae o Lele, (Lahaina) lele hou no o Puapualenalena iuka, a poai hele ae la ia Maui, a puni o Maui ia la hookahi no, a hui ae la me na waa i ka Laeokaoio i Honuaula, a malaila kahi i ee hou ae ai o Puapualenalena, a he mea mau no hoi i ko luna poe ka ike ole ia no kona lele ana a me kona hoi ana mai… A mai Honuaula aku, holo loa na waa i Hawaii… (p. 1)
>
> > Outside of Lele (Lāhaina), Puapualenalena again leapt from the canoe, so that he could travel around Maui, which he did in one day. He met the canoes at Laeokaʻōʻio [Keoneʻōʻio (?)] at Honuaʻula, and it was there, that Puapualenalena, again boarded the canoe. This is how it was, the people on the canoe would not know when he was coming or going… And from Honuaʻula, the canoes then sailed to Hawaiʻi… (Maly translator)

3.2.6.4 The Tradition of Laukaʻieʻie

“He Moolelo Kaao Hawaii no Laukaieie…” (A Hawaiian Tradition of Laukaieie) was published in the native language newspaper, *Nupepa Ka Oiaio*, between January 5, 1894 to September 13, 1895. The moʻolelo was submitted to the paper by Moses Manu, a native of Kipahulu. The story is a rich and complex account with island-wide references to places, descriptions of place name origins, history, and mele, interspersed with accounts from other traditions and references to nineteenth-century events.

Laukaʻieʻie, her supernatural-formed brother, Makanikeoi, and their chiefly companions sailed in their canoes to various locations around the Hawaiian islands, referencing various storied places of old. The following narratives from Manu (1894-1895, K. Maly, trans.) are excerpted from the moʻolelo, and include brief references to localities in the Honuaʻula region, and the voyages of chiefly canoes between Maui and Hawaiʻi:

> **May 25, 1894** [Passing between Maui and Kahoolawe]:

Ia Makanikeoe, malaila e nanea nei, aia na manowaa mawaho ae o Keoneoio ma Honuaula, ke pii pono ala i ke alo makani. A eia no ka maka hope mawaho ae o Puuolai a ua hoomalu aku ka holo ana o na waa no ka moana kaulana o Alenuihaha me ka pii wahi ale ole o ua moana huhu ala on ale ahiu. Aia ke kiei iho la ke kuahiwi kamehai o Haleakala, a ke oni mai la o Maunakea me Maunaloa a me Hualalai, mamua pono me ko lakou kulana kilakila o ka nani…

Makanikeoe had the fleet of canoes rest at Keone‘ō‘io, in Honua‘ula, which rises up in the face of the wind. It is marked by Pu‘u ‘Ōla‘i, where on the side the canoes find shelter, before entering the famous sea of ‘Alenuihāhā, where there is no place that the angry and wild waves of the sea do not rise. From here [Honua‘ula], one may gaze upon the wondrous mountain of Haleakalā, as Mauna Kea, Mauna Loa and Hualālai appear to move before you, in their outstanding beauty…

[Makanikeoe traveled overland, crossing Honua‘ula]:

November 9, 1894

…He mea oiaio, ua hoea ‘ku o Makanikeoe ma Pohakueaea, ka lae ma ke Komohana Hema o Maui ma Honuaula, a ua hiki loa ‘ku oia mawaena of ke—a o Kuanunu ma Puuonole, a ua huli hou aku oia e nana i na mana maloko o keia lua.

It is true, Makanikeoe arrived at Pōhaku‘ea‘ea, the southwestern point of Maui, at Honua‘ula, he then arrived at the lava fields of Kuanunu at Puuonole, and he then turned to look into the divisions of this crater.

Aole no hoi i liuliu iho, ua komo hou oia ma kekahi wahi mana uuku loa me ke ano apuepue o kona hele ana malalo o ka honua, a ua puka koke aku no oia malalo aku o ke—a o Kuanunu he wahi kipuka lepo makai ma Auwahi.

In a short time, he entered into a very narrow area, where only with great difficulty was he able to travel below the earth. He came out below the rocky area of Kuanunu, at a soil *kīpuka* below Auwahi.

Aia ma kela wahi i hele maoli aku ai o Makanikeoe maluna o ka aina a hiki i ka palena o Honuaula a me Kahikinui, oia hoi o Keahuaiea.

Then Makanikeoe was able to travel on the land, to the boundary of Honua‘ula and Kahikinui, that is, at Keahuaiea.

A no kona awiwi no ma ka hele ana, ua hiki aku la keia maluna pono o na puu mahoe o Lualailua, a mai

Because of his swift travel, he arrived at the top of the twin hills of Luala‘ilua, and from there, he arrived at the gulch of

laila aku oia no ke kahawai o Waiahualele—a ma o iki aku, aia hoi, ua huli ae la oia a ike i kekahi ana e hamama mai ana makai o ke alanui…

Waiahualele—and a short distance from there, he turned and saw the opening below, where the travel was…

Aperila 26, 1895

[The naming of certain Puʻu ʻEhuhe at Honuaula… (cited in an account originating on Oʻahu)]:

…Malaila ka eueu ma Kapapakolea, a halawai oia me kekahi kupua, he Peelua e moe ana, a ma ka nana pono ana o ke Kamaeu i ke ano o keia mea onioni a puni kona kino i kona mau kakau pamo me ke ano malule, aka he mea ko nae i ka makau ke nana aku. A ma kona ano mana nui ua hiki loa ia Makanikeo ke koho aku i kona wahi i hele mai ai a me kona inoa ponoi.

This spirited one was at Kapapakolea (above Honolulu), and he met with a *kupua,* a sleeping Caterpillar. As this adept youth looked upon this quivering thing, he saw that his body was entirely surrounded by designs, much like on a shirt, except that it was fearful to look upon. Through his supernatural power, Makanikeoe detected where this being had come from and what its name was.

E hoakaaka ka mea kakau moolelo ma keia wahi. O keia Peelua e moe nei ma Kapapakolea, maluna aku o Huluamanu, o Kumuhea kona inoa. Ka mea i oleloia he kanaka ino. Ua hele mai oia mai Tahiti mai, oia hoi kela aina nui. A o ka lua o ka inoa o keia Peelua, oia o Keliikinolua, o kekahi hoi o keia on kanaka ui oi kelakela…a ua noi hoi na wahine maikai o keia Pae Moku i lilo aku i keia Peelua.

The writer of this story must explain something at this point. This Caterpillar that was sleeping at Kapapakolea, above Huluamanu, was named Kumuhea. It was said that he was an evil man. He came from Tahiti, that great land. And the second of the names of this Caterpillar was Keliʻikinolua, for one body was that of an exceptionally handsome man…and many beautiful women of these islands had asked to marry this Caterpillar-being.

A ua kamaaina keia Peelua ma Kau, Hawaii, a nona hoi ka inoa e o ala ma kela puu o Puuenuhe. Pela no ma Kula, Honuaula a me Kahikinui ma Maui, a ma Kalae i Molokai a ma keia wahi a

This Caterpillar was known at Kaʻū, Hawaiʻi, and the name by which he was known is there at the hill called Puʻu ʻEnuhe. It is the same at Kula, Honuaʻula and Kahikinui, on Maui, and at Kalaʻe on Molokaʻi, and it was at this place,

Makanikeoe i ike ihola ma Kapapakolea… | Kapapakolea, that Makanikeoe saw him…

3.2.6.5 Tradition of Pele and Waka

The honua ola of the Hawaiians is a reflection of the relationship between the akua (gods, goddesses and creative forces of nature) and kānaka (Hawaiians). One example of this ever-present relationship with the akua in the lands of Honua‘ula is discussed by Moses Manu. By the 1860s, Manu had relocated to O‘ahu where he worked with the native newspaper *Ke Au Okoa*. He returned to Kipahulu in the early 1880s, and from there he submitted several notable mo‘olelo, among which was “Ka Moolelo Kaao Hawaii – Ke Kaua Nui Weliweli Mawaena o Pele-Keahialoa a me Waka-Keakaikawai…” which includes passing references to Paeahu and wahi pana of the region.

As the title implies, the tradition relates the conflict between Pele (goddess of volcanoes and earth creation) and Waka (a goddess of the mo‘o or class of being associated with water, springs, fishponds and growing things), a mortal enemy of Pele. During her journey across the Hawaiian Islands, Pele stops on Maui and engages in several events and interactions with akua and kānaka. On September 16, 1899, Manu references Pele in Honua‘ula. The following excerpts from Manu (1899, K. Maly, trans.) relate to Pele’s visit to Paeahu, and the naming cultural-geographic features on the landscape:

> Na keia Pele no i hana, na puu mahoe ma Ulupalakua i kapaia ka inoa o Nahaleloulu e ku nei; a ua nee aku la ka Pele ma Paeahu, a oia hoi ka palena o ka pele ma Honuaula; a —— hiki i keia wa ma Maui. A ma ia ano —— E Ike No Ke Kamahele, ke na na [nānā] ma keia mau wahi a ka mea-kakau-moolelo e hoike nei; nolaila, a haalele iho a na kakou ia “Maui no ka oi.” Haalele ka Pele ia Maui no Hawaii…
>
> This is what Pele made, the [Pu‘u Māhoe] Twin Hills in Ulupalakua, which stand there and are known by the name Nahaleloulu [Nā-hale-loulu[9]]. Pele then moved to Paeahu, which is the boundary of the pele (lava flow) at Honuaula — up to this time on Maui. It is so even now —— Upon looking, the traveler shall see these places which the writer of this traditions makes know; so we shall now leave “Maui which is the best.” Pele leaves Maui for Hawaii…

Manu’s mo‘olelo continued, describing Pele’s travels, as she left Maui from Haleakalā:

> **“Walohia wale Haleakala—**

[9] Hale-loulu (Pritchardia palm leaf house) is a type of heiau that was made as a place to offer prayers to ward off epidemics, famine, and disasters. One would assume that such a name implied the presence of such a place of worship (see 4. “loulu” in Pukui & Elbert, 1986, p. 196).

O Maui no e ka oi."

"Sadness at departing from Haleakalā—
Maui is indeed the foremost."

Manu then reported that Pele and her large family departed from Pōhakuopele, beyond the distant Point, east of the bay of Keone'ō'io.

3.3 Foreign Settlers and Early Kingdom History

The arrival of European explorers in Hawaiian waters in the late 18th century marked the beginning of profound changes for Ka'eo and Mākena. Captain Cook's arrival in 1778, followed by increasing Western presence in the islands, introduced new diseases, technologies, economic systems, and cultural practices that would transform Hawaiian society (Maly & Maly, 2005, p. 30).

While Cook himself did not visit Mākena, early Western ships began to make contact with the South Maui coast by the 1790s. Accounts from early visitors who described the landscape and communities of the region. These early observations provide valuable snapshots of Ka'eo and surrounding areas during a period of initial cultural contact and change. European and American ships increasingly visited Hawaiian waters for provisioning, trade, and eventually as part of the sandalwood and whaling industries (Maly & Maly, 2005, p. 36).

One of the most devastating early impacts of Western contact was the introduction of foreign diseases to which Native Hawaiians had no immunity. Historic references show a population decline throughout the Hawaiian Islands, with epidemics of diseases such as smallpox, measles, and influenza causing significant mortality. While specific population figures for Ka'eo are not well documented, the general pattern of demographic collapse that affected all Hawaiian communities almost certainly impacted this region as well, disrupting traditional social structures and knowledge transmission (Maly & Maly, 2005, p. 37).

From 1800 to the 1840s, the ahupua'a of Ka'eo was governed under the traditional Hawaiian system by ali'i and konohiki appointed by them. This era, prior to the Māhele 'Āina of 1848 (Māhele), was a time when Native Hawaiian governance and resource management thrived, sustaining a vibrant community rooted in balance with the land and sea.

Honua'ula's land and resources were controlled by several prominent figures during this time. Moses Kekuaīwa, a high-ranking ali'i and grandson of Kamehameha I, held a position of great authority in the region due to his sacred status and lineage. Another

significant leader was John Young Kanehoa, a chief of mixed Hawaiian and European ancestry and a confidant to both Kamehameha II and III. As a trusted advisor to the monarchy, Kanehoa played a pivotal role in bridging traditional Hawaiian leadership with foreign influences. Pikanele, a lower-ranking aliʻi, also served as a land steward, managing the lands and assets of the aliʻi and ensuring that the ahupuaʻa's resources were allocated responsibly and sustainably.

By the early 19th century, Mākena had become an important port for provisioning whaling ships. The harbor at Mākena provided a sheltered anchorage, and local residents engaged in trade with foreign vessels. This commerce introduced Kaʻeo's residents to the Western cash economy and created new economic opportunities beyond traditional subsistence activities (Maly & Maly, 2005, p. 32).

The expanding maritime trade brought new goods and technologies to Kaʻeo, including metal tools, cloth, firearms, and various manufactured items. These introductions changed material culture and affected traditional practices. Metal fishing hooks began to supplement traditional bone and shell hooks, while new agricultural tools altered farming methods. Local communities selectively adopted these new technologies while maintaining many aspects of traditional practices, demonstrating active agency in navigating cultural change (Maly & Maly, 2005, p. 38).

The sandalwood trade, which flourished in Hawaiʻi between approximately 1790 and 1830, likely affected Kaʻeo and surrounding areas as well. Though not a primary sandalwood harvesting region, the economic and social impacts of this trade reverberated throughout the islands. The demands of the sandalwood industry diverted labor from traditional subsistence activities and contributed to political and economic changes that affected all Hawaiian communities. Residents of Kaʻeo may have participated in sandalwood harvesting in upland areas of Honuaʻula or been impacted by the broader economic changes associated with this trade (Maly & Maly, 2005, p. 39).

The whaling industry had more direct impacts on Kaʻeo and Mākena. By the 1820s-1840s, Mākena had emerged as a significant port for provisioning whaling ships. Local residents produced food and supplies for trade with these vessels, creating new economic opportunities but also increasing pressure on local resources. The harbor at Mākena facilitated this trade, becoming an important point of contact between the local Hawaiian community and the global maritime economy (Maly & Maly, 2005, p. 40).

The introduction of Christianity to the Hawaiian Islands in 1820 had significant impacts on Kaʻeo and Mākena. Missionary presence in the region led to the establishment of Keawakapu Church (later Keawalaʻi Church) in 1832, which became an important community institution. The adoption of Christianity by many residents represented a major

cultural shift, as traditional religious practices were increasingly abandoned or transformed (Maly & Maly, 2005, p. 35).

Protestant missionaries based in central Maui began visiting the Honua‘ula region in the 1820s and established an outstation at Keawakapu by the early 1830s. Maly & Maly documented excerpts from missionary journals and letters that describe the efforts of religious conversion in the area. These accounts offer valuable insights into the community and landscape of this period, although they should be read with an awareness of the cultural biases inherent in missionary perspectives (Maly & Maly, 2005, p. 41).

The construction of Keawakapu Church in 1832 established a permanent Christian presence in the area and created a new community focal point. The church building, constructed of local stone with coral lime mortar, represented both new architectural techniques and the growing influence of Christianity in local spiritual life. The congregation included both Native Hawaiian converts and, increasingly, foreign residents who had begun to settle in the area (Maly & Maly, 2005, p. 42).

Educational institutions associated with the missionary movement also appeared in Ka‘eo during this period. There was the establishment of a small school near Keawakapu Church where instruction was initially provided in the Hawaiian language. These schools introduced Western-style literacy and education while simultaneously serving as centers for religious instruction and cultural change. The introduction of literacy had profound implications for Hawaiian culture, as traditional oral knowledge systems began to be supplemented and sometimes replaced by written documentation.

Early government censuses conducted in the 1830s-1840s provide glimpses of the changing demographics of Ka‘eo and surrounding areas. These records indicate a declining but still substantial Native Hawaiian population alongside a small but growing presence of foreign residents. The household compositions documented in these censuses reflect both traditional extended family structures and emerging new household patterns influenced by Western models.

The early Western contact period also saw the beginning of changes in land use and agricultural practices. The introduction of new crops such as Irish potatoes, melons, and various vegetables that were grown for trade with visiting ships. Cattle, goats, and other livestock were introduced to the islands and began to appear in Ka‘eo, initially as free-ranging animals that often damaged native vegetation and traditional agricultural systems. These agricultural changes represented the beginning of a transition away from traditional subsistence farming toward market-oriented production (Maly & Maly, 2005, p. 45).

By the 1840s, the cumulative effects of these changes had significantly transformed the cultural landscape of Kaʻeo. Traditional religious practices had been largely supplanted by Christianity, the subsistence economy was increasingly integrated with market forces, Western diseases had altered community demographics, and new technologies had changed material culture and daily practices. Yet despite these profound changes, many aspects of traditional Hawaiian culture persisted, particularly in areas related to marine resource use, family structure, and cultural values.

However, by the late 1840s and early 1850s, this traditional system began to erode as foreigners secured land interests in Honuaʻula. Among these individuals were L. Torbert, William Wilcox, William Fredenberg, and Warren Goodale. Following Hawaiian customs, these foreigners were often recognized as konohiki, granting them authority over large tracts of land. This marked a significant shift in land management, as the primary focus under foreign stewardship became the development of business opportunities rather than the sustenance of local communities.

The introduction of foreign landowners and their commercial ventures disrupted the traditional land system of access. Large tracts of land in Honuaʻula were removed from the ahupuaʻa framework, limiting hoaʻāina's (native tenant) access to critical resources. These lands were repurposed for enterprises such as sugar plantations, ranching, and the cultivation of Irish potatoes (ʻuala haole), which were grown to supply the burgeoning whale trade. While these ventures were economically advantageous to the foreign landowners, they often came at the expense of the local Hawaiian population, who were displaced from their ancestral lands and forced into labor under new systems of governance.

This era marked the beginning of profound changes for Mākena and the ahupuaʻa of Kaʻeo. The interplay between traditional Hawaiian leadership and the encroaching influence of foreigners set the stage for the eventual privatization of land through the Māhele ʻĀina, which would further alter the cultural, economic, and environmental landscape of the region. The loss of communal access to land and resources disrupted the way of life for many Native Hawaiians, leaving lasting impacts on the community that are still felt today. Settler colonialism in Mākena introduced a cycle of dispossession and economic exploitation that displaced Native Hawaiians and entrenched foreign dominance. These early land acquisitions set the stage for the Māhele ʻĀina and the eventual commodification of Hawaiian lands, solidifying settler control over Mākena.

3.3.1 Naleipuleho on Native Residency in Honuaʻula

One of the earliest native accounts recorded for the Honuaʻula region, describing residency and practices of the natives in the years leading to the economic development of land interests, was published on June 8, 1836 in the Hawaiian language newspaper,

Ke Kumu Hawaii. In the account, native resident Naleipuleho described the region of Honua‘ula as one that was frequented by famines but where people in the uplands cultivated such crops as sweet potatoes, taro, and sugar cane, and those living on the shore focused primarily on fishing. The residents also traveled between the uplands and coastal lands to exchange products. Naleipuleho (1836, K. Maly, trans.) also reported that those people who lived on the shore, had easier access to regular supplies of potable water, than those people who lived in the uplands:

NO KA NOHO ANA O NA KANAKA MA HONUAULA MA MAUI.	**RESIDENCY OF THE PEOPLE OF HONUA‘ULA, MAUI**
Ke hai aku nei au ia oe i ke ano o keia aina, i ka noho ana o na kanaka.	I hereby tell you about the nature of this land and the residency of the people.
Eia ke ano. He aina wi, o Honuaula. O ka uwala ko laila ai, a me ka kalo, he ai pau wale no ia. Eia ka ai mau loa, he ko, he ki lau o ke aa, o ke ki lau a me ka muo, o na ai mau loa ia.	Here are the characteristics. Honua‘ula is a land of famines. The sweet potato is the food there, and the taro, but they are foods which do not last. Here are the foods which are always available, sugar cane, ti leaf roots, and the budding leaves of the ti are the steady foods.
Eia ke ano o ka noho ana o na kanaka; elua wahi noho. Ma kahakai, mauka mawaena o ka aina. O ke kii ana o ka ai a na kanaka ma kahakai he loihi loa. He kokoke ka wai o lakou. Pomaikai lakou i ke kokoke o ka wai a me ka ia. Poino ko lakou mau ai i ka loihi o ka ai.	Here is how the people live; there are two places of residency. Along the shore, and in the mid uplands of the land. The people who live on the shore, must travel a great distance to get vegetable foods. But, the fresh water is close to them. They are blessed to be near the drinking water and fish. Though they are greatly burdened in having to travel far for their other foods.
O na kanaka i noho mawaena o ka aina,—pomaikai lakou i ka ai i ke kokoke o ka ai. Poino lakou i ka wai i ka loihi o ke ana o ka wai. Aia no i kahakai ka wai e kii ai. Ina e kii iuka i ka wai, he loihi ke pii aku iluna, he naenae ka pii ana,—aia no i ka lae laau ka wai, i hoi mai he lole ke kuli i ka loihi o ka hoi ana mai, i ke kii ana	The people who reside in the middle of the land, are fortunate that their foods are close to them. But they are unfortunate because the fresh water is a great distance from them in the caves. There is water which they can get from the shore. If they travel to the uplands to get water, it is a great ascent, and fatiguing—the water is there in the forest groves; returning causes pain in the

o ka wai elua ipu nui e ukuhi ai i ka wai, a piha, hoi mai. Hooheehee i na huewai, liilii, a piha, a koe ke koena he wai auau, he wai hoopulu hana wauke, i mea kapa.	knees, for the great distance of the trip, and for only two large water containers in which to pour the water and return. The water gourds hang down, and there is a little that remains for bathing, and moistening the *wauke*, made into *kapa*.
Na I. Naleipuleho.	By I. Naleipuleho.

3.3.2 Plantations and Ranches Develop – Native Tenants of Honua‘ula Displaced by Roaming Cattle

In 1793, Captain Vancouver introduced cattle by “gifting” them to King Kamehameha I and asking that a kapu be placed on them to ensure that herds would grow and serve as a source of meat for visiting ships. As the number of ships calling on Hawaiian ports increased, there also grew new economic pressures. Hawaiian interest in foreign goods grew, and foreign desires for Hawaiian supplies and safe harbors grew as well. A radically different system of foreign economics progressed almost unchecked in the islands, generally to the disadvantage of the Hawaiians.

In 1820, Calvinist missionaries from America arrived and settled the islands. They brought with them not only their religious beliefs, but also their American values—among which were private property rights. By the middle 1820s, lands were being granted to the American Board of Commissioners for Foreign Missions (A.B.C.F.M.) for church, residency, schools, and the development of businesses with which to support the growing Sandwich Islands Mission. By the 1830s, other foreigners who had provided some service or other asset to the King or his landed chiefs, were also receiving lands for their use. Such property rights led to the development of sugar plantations and ranching interests. Ranching activities became an urgent need to control the growing herds of wild cattle and other ungulates left in the islands by Captain Vancouver and later shippers (see Kuykendall, 1968, pp. 40-41).

By the middle 1840s, King Kauikeaouli (Kamehameha III), under the tutelage of his missionary teachers, began to reorganize his Kingdom birth-right under an American system—a system which also incorporated many foreign office holders. From his land inventory, he set up a mechanism to lease out and eventually sell large tracts of land for the development of businesses, which it was hoped, would also benefit the kingdom. Interestingly, the uplands of Honua‘ula were among the early lands leased out to foreigners for plantation and ranching ventures. Two prominent participants in the Honua‘ula venture were Michael J. Nowlein and Linton L. Torbert, both of whom worked lands in the ‘Ulupalakua vicinity as sugar plantations. Nowlein operated the Kingdom (*Aupuni*) plantation and Torbert operated a leasehold plantation.

While these developments were occurring in government offices and land use, several native residents grew alarmed. In 1845 hundreds of native Hawaiians from Maui and Hawai‘i petitioned the King to “Permit no naturalized foreigner to hold any office. To allow no foreigners hereafter to become naturalized. To part with no lands to foreigners…” (*The Polynesian*, July 26, 1845, p. 40).

In December 1845 and January 1846, King Kamehameha III, Cabinet Members, and Ministers visited Maui to address the people on these matters. Kamehameha III, J.Y. Kānehoa, Governor of Maui (who a few years later would come to own nearly 4,800 acres of Paeahu), A. Pākī; and appointed Ministers met with Hawaiians in large gatherings at various locations. The following excerpts from *The Polynesian* summarize the thoughts of the King and others in his government on these matters and make specific reference to the “experiment” of dividing and granting fee-simple interest in properties at selected locations in the islands. It will be noted in the comments made below that the lands of Honua‘ula were specifically referenced and both sugar cane and Irish potatoes were deemed important monetary crops. By this time, wild cattle had already led to the abandonment of two districts on the island as well:

> **Honolulu, Saturday, Feb. 14, 1846**
> **His Majesty’s Late visit to Maui.**
>
> The royal party left this place on the 18th of December and arrived at Lahaina on the 20th… On the 12th January, His Majesty addressed several thousand of his subjects, at Wailuku, to the following effect:
>
> I have addressed you before with my *KUHINA*, who is gone. I alone am left. I now repeat the same, and urge you to support schools and cultivate the land.
>
> We are seeking the good of the country but the work is not done. We are making laws, but they are not *pohihihi* [bewildering]. If they are so to us they will be so to you. Your hereditary chiefs have been in trouble, and therefore have chosen some to aid them. They are the ministers of white skin, whom you see. This is according to the old system. They know more than we, and I have chosen them for the sake of their knowledge. You have heard of our trouble. I have seen it.
>
> Therefore we have chosen these helpers to help you. We have heard of your petitions. Should we consent to them, trouble would immediately follow—instantly—before night. I ask you therefore to put an end to your wish to promote that petition…
>
> …On the 14th, His Majesty addressed a large concourse of people at Makawao

with great effect. A large proportion of the assembly were melted into tears. The Premier followed, urging the people to attend to useful knowledge, agriculture and religion, as the king provided for his own children he provided for theirs. Mr. Judd then spoke of the new arrangement of selling lands in fee simple to the natives in that district, with which they were much gratified. After crossing Mauna Haleakala, sleeping on its summit, and examining the crater, the royal party stopped on the 16th at a romantic place called Mokulau…

…Agriculture on Maui is in a forward state, compared with Oahu. At Honuaula there are 178 acres under cultivation of sugar cane with a good sugar mill managed chiefly by natives. One farm, besides sugar, raises $5000 worth of Irish potatoes annually. There are 12 foreigners here, one of whom John White, arrived in 1799. On some parts of Maui the cattle have done much mischief by trespassing on the plantations, and driving the owners from their little farms. Two districts have in consequence been deserted…

3.3.3 Loss of Hawaiian Men to Whale Ships: Impacts on the Population of Honua‘ula

In 1846, Jonathan S. Green, a resident of Makawao, wrote a letter to the editor of *The Polynesian* in which he described the loss of people from some of the districts of Maui, including Honua‘ula. Green, who served the Sandwich Islands Mission between 1828 to 1842, had also spent several years in the Wailuku Station, from where he also worked the Honua‘ula out-station, centered at Keawakapu. Upon resignation in 1842, Green settled permanently in Makawao to run a Hawaiian boarding school. He was a key participant in the growing land “experiment” implemented by King Kamehameha III, in which natives and naturalized foreigners were permitted to gain fee-simple interest in land. In his position as headmaster, he watched the loss of native youth to the whaling venture:

May 23, 1846
The Polynesian
J.S. Green; to Editor, J.J. Jarves:

In speaking of Makawao, and of matters and things at our station, as I proposed doing, I shall first mention some facts which have an unfavorable bearing on the interests of the district—of course, on the prosperity of the nation—which not only threaten to frustrate our hope of seeing the experiment which we are making a successful one, but which fill our bosoms with sad forebodings as to the destiny of the Hawaiian nation. 1. The fact that the number of young men who leave home, and engage their services on board whale ships, is rapidly increasing, is one of the facts, so far as my people are concerned, which fills me with painful apprehension.

More or less of the Hawaiian youth, I am aware, have engaged in this business for many years, especially those living in the vicinity of Honolulu, Lahaina, Hilo and Kaawaloa. But of late the number of these has greatly increased—at least in our vicinity—so that the present season not a few of the most promising young men from Kula, Honuaula and Wailuku have gone to sea. During the three years past we have had an excellent native school at Makawao, taught by a graduate of Lahaina Seminary. Many of these young men had made good proficiency in their studies—had nearly completed their course of education, and some few of them had commenced teaching. Now that these youth were just ready to engage in labors for the good of the nation, they have nearly all gone on board whale ships, and thus our hopes of good to the nation through them is for the present, utterly blighted.

I wish to draw the attention of the King, Chiefs, and Foreign Officers of the Hawaiian Government, and of all the friends of this nation to this subject. I have written the King, suggesting some inquiries…

1. How many natives of your islands are now on board whale ships and merchantmen, as regular seamen?
2. How many of them have families?
3. How are their families supported in the absence of the husband and father? Do they often suffer, and in how many cases do they—the wives of seamen—sell themselves for the means of subsistence?
4. Do many native seamen find the business of going to sea profitable? More so than an industrious method of cultivating the soil, or engaging in other business would be?
5. Are native seamen often ill-treated on board foreign ships, flogged, or kicked about the deck?
6. What is generally the character of the influence exerted upon these men when on ship board? Are they allowed to observe the Sabbath, or are they required to work often as on other days? Do native seamen commonly leave a foreign ship as moral as when they went on board—or are they often profane and more skillful in mischief than before they came in contact with foreign seamen…?

Through accounts such as those above, we see that by the middle 1800s, the population of Honuaʻula was diminishing, and land tenure and land use practices were being Westernized.

3.4 Historical Events in the Lives of Native Residents of Honua‘ula

In an earlier section of this study, the important letter by I. Naleipuleho (**Section 3.3.1**) was cited. It was the earliest native account found as part of the research done, describing residency and subsistence practices in Honua‘ula. Besides this account and the traditional accounts cited previously, a number of historical descriptions of Honua‘ula were published by kama‘āina residents and visitors to the region. Selections from their writings are provided in the following sections.

3.4.1 Manō (Sharks) Worshipped and Feared at Honua‘ula

Oral historical accounts document that native residents of the Mākena-Keone‘ō‘io vicinity have shared a unique relationship with certain sharks of the region for generations. Such sharks are sometimes known as ‘aumakua (family gods and guardians). Not all sharks were of this class, which was also called manō kanaka (sharks of the people). The other class of sharks, manō i‘a (fish sharks), were the wild sharks of the sea and greatly feared by the Hawaiians. Traditionally, it was the manō i‘a that were hunted and, at times, made the play things of the fearless warriors and chiefs of old (pers. comm. M. Kawena Pukui; Maly notes, 1975).

In reviewing historical accounts related to the lands of the Honua‘ula District, research found that S.M. Kamakau, who held various government positions on the island of Maui, wrote about manō and the beliefs associated with them. Kamakau’s writings also include an account of shark attacks on fishers at Honua‘ula. Interestingly, one of these accounts by Kamakau (1968) references the period when Mahoe, a resident of nearby Kā‘eo, was a teacher in the district:

> In the country districts of Maui I have often seen persons who had been maimed by a shark—a foot cut off, a hand cut short, one side, or both, of the buttocks gone, the back badly scarred, the face marred, the eye and cheek torn away, and so forth. I saw one woman whom I pitied especially. She lived at Ma‘onakala in Kanahena, Honua‘ula, when Mahoe was the schoolteacher, in this era of writing (ke au palapala). She was nearly engulfed by a shark, and I saw the horrible scars made by the teeth of the shark on the back and front of her body. The woman had dived to set a fish trap, and after making it fast in the current, she returned to the coral head where her companion was chewing bait, took the bait, and dived again to put it into the trap. When she turned to go back to the coral head she saw a small shark pass in front of her; then she felt the sea warm about her feet and herself being gulped down. Her whole body was inside the mouth of a shark, and its top jaw was just closing over the lower jaw when the small shark crossed and held up the top jaw and pressed the lower jaw down on a rock. Her companion saw her and called out, “So-and-so is being eaten by a shark! Pau o Mea i ka

mano!" Here was the woman inside the shark, and the little shark circling above the large one. She saw an opening between the rows of sharp teeth and struggled out, with the help of that little shark who splashed and drove the other away. She was badly torn, and lay on the rock and fainted dead away; but she was still living. I first saw this woman at Lahaina in 1845 at the home of Mahoe and his wife Kealoha. Hoʻoikaika was her daughter, and they belonged to the household of the Reverend Mr. Baldwin. I actually saw the marks of the shark's teeth on her body; it was cut and ridged back and front from her head to her feet…

This is the main reason why the people of Maui worshiped sharks—in order to be saved from being eaten by a shark when they went fishing. At Kaupo, Kipahulu, Hana, Koʻolau, Hamakuapoko, Kaʻanapali, Lahaina, and Honuaʻula a fisherman was in danger of being devoured by a shark when he was out fishing with a dip net (ʻupena ʻakiʻikiʻi), or fishing for octopus with a lure (lawaiʻa luʻuheʻe), or setting traps for hinalea fish (hoʻoluʻuluʻu hinalea), or diving with a scoop net (lawaiʻa uluulu), or setting out fishnets (lawaiʻa ʻupena hoʻauʻau), or whichever kind of fishing a man would be doing alone. It would be better to stay ashore, but the fisherman craves fish to eat, and so might be devoured by a shark. Hence the people of that island worshiped sharks. Most of the people of that land do not eat shark even to this day; those who do are malihini—the kamaʻaina are afraid to eat shark. (pp. 75-78)

3.4.2 Mākena and Operations of Makee Plantation (ʻUlupalakua)

The native newspaper, *Ka Nupepa Kuokoa*, of April 11 and 23, 1863, published a letter from a writer who signed his name as "Who do you think?" (dated March 26, 1863). The letter provided details of agricultural developments, residency, and an account of the destruction of the forest resources in Honuaʻula and neighboring ʻāina. Excerpts from the letter, translated by K. Maly, are below:

April 11, 1863

Mākena, East Maui.
…I send to you one of the things I have written of my journey these past days, from Mākena to Makawao…

The Wheat Season of the Year 1863.
The appearance of the wheat fields from Kula and Makawao is good. It is not molested by the birds as I would have thought. The harvest for the past year is 27,000 bushels. The Honolulu Mill has processed 22,000 bushels, and the Wailuku Mill has processed 5,000 bushels…

The Sugar Season of East Maui in the Year 1863.

It is estimated that the total crop of sugar from all the plantation of East Maui totals:

Makee's plantation	400 tons.
Brewer's plantation	250 tons.
The Haiku plantation	400 tons.
The East Maui plantation	75 tons.
The Waiehu plantation (new land)—	
The Waihee plantation (new land)—	
The Wailuku plantation	250 tons.
Land of the Waikapu Mill	300 tons.
Land of the Hana Mill	125 tons.
The total being	1800 tons.
And if combined with the Lahaina crop	200 tons.
	2000 tons.

That is a total of 4,000,000 pounds, almost 1,000,000 pounds more than the previous year…

The Sugar Plantation of Makee.
Because it was extremely dry, the sugar lands of Makee produced 100 tons less of sugar than the previous year. But it is enough to take care of the poor families there. There is water that has flowed from the hills of Palauea these past months, and the Owner of the place (Capt. Makee) has sent some corrugated metal by which to catch the water. Capt. Makee has begun again, to plant on the lands he owns at Palauea, combining with the sugar lands purchased by Mr. Wilcox. Therefore, there will be adequate cane for milling from these lands, and he (Makee) is building a new mill on a high place, along the government road to Makawao, at Palauea, and above the house of Judge Saffery and Mr. Wilcox…

April 23, 1863

Remainder of the letter from Who do you Think?
…Palauea and Mākena.

Most of the people who lived near the shore, when Mr. W.H. Rogers was buying firewood from the lands behind, have departed at this time. I cannot express the regret I feel for the failure of their business. But I greatly regret seeing that all the good forest trees have been cut, leaving the land with nothing. There is nothing to shade the land from the heat of the sun, nothing which may again tame the daylight upon the land.

> Mākena has obtained prominence as a locality, as it is well equipped with a good pier, and in these days, it is filled with the people who follow after the whales, and the fish which supply the needs of the people. A result of the abundance of the oil, the needs of everyone, from the Minister to the children are met. The Church of the Rev. Mr. Nueku is there. It is a fine stone house. And I have heard that there will shortly be built, a new bell tower there, situated near the house of Rev. Mr. Nueku.
>
> If there is to again be a feast for donations for this thing, I will give five dollars, and two more to see the ladies of this place, jumping through the hoops along the road side. Leading the women to the feast, throwing coins to them along the way, and throwing kisses too. In my estimation, we must support Rev. Mr. Nueku in his work, and the failure to secure enough money would be through no fault of his own. Many ministers would do well to follow in his good works…

3.4.3 A kanikau for J.K. Samuela

In 1863, a kanikau (dirge-chant of lamentation) was contributed by Mele, commemorating the passing of J.K. Samuela. In her lament, she recounts places visited by them. The following excerpt (Mele, 1863, p. 1) from the kanikau describe the shores of Honua‘ula as being destitute of vegetable foods, and the hot plains that rise up to Ulupalakua:

Aloha kuu kane mai ke ala paa i ka Ohu o Kahikinui. A me ke kaha ai ole la o Honuaula. Hele aku kaua o ke kula wela i ka la o Ulupalakua. Iho aku o kaihona loa la o Kaluaihaloko. Hoi aku ka ihu o ka lio i Kalepolepo. Nana aku o ka piina ikiiki o Aalaloloa. Huli aku nana i na lehua o Liliau. Ka mea kaumaha o ka manao he kane — e.	Love to you my husband who has traveled the trail covered by the mist of Kahikinui, and the foodless shores of Honua‘ula. We have traveled the open plains of ‘Ulupalakua in the heat of the sun, and descended the slope of Kaluaihaloko, turning the nose of the horse to Kalepolepo. And glanced upon the difficult ascent of ‘A‘alaloloa. We have turned and gazed upon the *lehua* of Liliau. These are things which now grief me in thinking of my husband.

3.4.4 The Birth of Ha‘eha‘e Kukahiko

Of interest to members of the Kukahiko family of the Mākena region—descendants of “John” Kukahiko and Kamaka Kuhaulua (Kekuhaulua) Kukahiko, who also share familial ties with ‘ohana of Paeahu—is the notice of Ha‘eha‘e Kukahiko’s birth in 1865. The elder Kukahiko was a man of chiefly lineage who in the Māhele, received the ‘ili of Ka‘alawai at Waikīkī as his personal land. By some tie to Honua‘ula, Kukahiko also received his first

fee-simple interest to land at Moʻoiki, in 1854 (Royal Patent Grant No. 1495), situated on the mauka side of Puʻu ʻŌlaʻi. His wife, Kamaka Kuhaulua Kukahiko was a descendant of traditional families of the Honuaʻula region. In the notice below, John and Kamaka Kukahiko announced that on May 11th, 1865, their daughter, "Haehae," had been born.[10]

> ***Ka Nupepa Kuokoa***
> **July 6, 1865 (page 3)**
>
> Mei 11, ma Paeahu, Honuaula, hanau o Haehae w., na J. Kukahiko me Kamaka.
>
> May 11th, at Paeahu, Honuaula, Haehae f., was born to J. Kukahiko and Kamaka.

3.4.5 A Visit to ʻUlupalakua and Mākena in 1868: Hawaiian Riddle of the Kala Fish

On November 14, 1868, *Ka Nupepa Kuokoa* published a letter initialed: "M, of Born Hill, Lahaina." The letter informed readers of the meeting of church elders held in Wailuku and described the trip made from Lāhaina to various locations on Maui, including descriptions of ʻUlupalakua and Mākena with references to Reverend H. Manase and an account of a dream the writer had the night he slept at Mākena. By way of the dream, "M" (1868) shares a riddle that plays on the name of the kala (surgeonfish):

> On the afternoon of Thursday, Oct. 15th, we departed from Lāhaina, and went to Wailuku to attend the Elder's Meeting for the Island of Maui…
>
> [Having departed following the meeting to visit various locations, the author and party arrived at ʻUlupalakua.]
>
> **Rose Land ʻUlupalakua.**
> The nature of this land is like that of a rose garden filled with blossoms. The beautiful home of J. Makee, Esq., has no equal. We arrived there the evening of Tuesday, Oct. 20th. We were astonished by the gracious hospitality received by us from this kind foreigner. He inquired of us our names, what we did, where we resided, and what the purpose of our journey was, and H. Manase interpreted our discussion with him, into the English language. He then took us to visit his arboretum. The things grown there are like nothing else seen, there are beautiful flowers, and trees of all kinds. The road passes through the gardens, and to the large reservoir within the arboretum, it looks like a pond. (The visitors heart and thoughts greatly admire the fragrant upland, where flock together the birds.)

[10] Haʻehaʻe was the grandmother of interviewee Samuel K. Ponopake Chang, and great grandmother of interviewee Edward Chang, Jr. (in Maly & Maly, 2006).

When he finished showing us around the gardens, he took us to meet his lady (his wife), the one about whom visitors say, “She is the queen of the rose garden.” We visited at their house, and then departed from them, with *aloha* and appreciation.

J. Makee is a worshipful foreigner. He has built a chapel for his workers, and because the house is a small one, he is considering building even a larger one. The lands are truly good for sugar cane, should the owner be so inclined to mill it. The kingdom will benefit, as will the kingdom of our Lord, Jesus Christ of these Islands.

P.W. Ka‘awa remained here, and the three of us went to the shore of Mākena. It was dark by the time were reached Mākena.

Mākena.
We slept there that night, with the next day being Wednesday. During my sleep, I was startled by (dreaming of) the rustling of a fish net. The net being that of the fishermen, Peter and Andrew. It was very early in the morning, and I inquired of them what they were doing. They replied in their ancient place at Galilee, their elders fished with nets.

They set out their net three times, and drew up two fish. Here is the funny thing they said to me. “We two live by fishing, and you, who remains in the house, has nothing.” They then spoke to me in a riddle, asking me the name of the fish they had caught. It was thus, “Our fish is found in the sea is dark, where the waves crash on the shore, on the open lands where is grown the sweet potato, and where is heard the voice of the birds. So tell us the name of our fish, you who dwells in the house.”

My answer was thus. “Kala is the name of the fish. It is the kala fish that is there in the dark ocean; it is the limu kala that is there where the waves wash in; it is the puakala that is there on the plains where the sweet potatoes grow; and it is the ‘ākala that grows where the voices of the birds are heard.”

Their laughter resounded for my having understood their riddle, and thus that morning, I learned my lesson. If I were like the paddle makers in the uplands of Pu‘ukāpele, or if I were like the those fishermen of ancient times, who went fishing, I would get the fish, and I would then return to dwell in the house…”

When we finished our meal that morning, the thought arose that it was time to depart from Mākena, and from our companion, Rev. H. Manase. He dwells in solitude in this place with a heavy heart, and with pain, as he has no companion, but the people of the place. But praise be to God whose power is manifest in all

things, “It is his will that it be done, not ours.” We departed from Mākena on the Katy Lee. We boarded Katy Lee, when the clock struck 12 noon of Wednesday…

3.4.6 L. Kaiwi’s Report of the Church of God at Honua‘ula (1871)

L. Kaiwi (possibly a descendant of Kaiwi who was identified as a resident of Paeahu in Helu 10580 of Ohule) described the region of Honua‘ula and discussed various activities occurring between Paeahu to Kanaio:

> By the unchangeable grace of God in His bringing together His servant to associate with the older men, the older brothers of righteousness, greetings.
>
> The parish of Honuaula is a large one. Its northern boundary is Paeahu, its eastern side is Haleakala mountain, its southern side is Kanaio and its western side is the seacoast.
>
> **The status of the church.**
> We are pleased in hearing some things and sad in hearing other things. The members have associated in true spiritual life in these six months; we have not heard of commotion or liquor drinking and similar things. The meetings are well attended every Sunday. The evening meetings are continued in every district. The preacher visits the districts of Ulupalakua and Kanaio. The seaside districts do not unite because of the long distance there. The one head carries many heads. Likewise at Keoneoio and Kanahena. The head of the preacher carries many heads.
>
> Likewise at the church of Palauea. The preacher has gone to these above-mentioned districts on the first Sunday of every month and from those visits several persons have returned to the church on repentance and have joined the church, some have been baptized and some have been restored.
>
> **The Sunday Schools.**
> Sunday Schools have been held at three places—Ulupalakua, Keoneoio and Keawakapu. These schools have progressed in the six months and the preacher is the superintendent and he has some support behind him at Ulupalakua and Keoneoio. One Sunday School has held an exhibition this past month, that is, the school at Keawakapu. That school appointed a delegate to go to Honolulu. The Sunday School contributed $10.00 to the delegate for his expenses. There is one great deficiency in these schools, the lack of books.
>
> **Government schools.**
> There are four such schools in this district—three Protestant and one Episcopal in the English language…

Sugar mill.
There is one sugar mill in this parish. I am sad to tell you about this sugar mill when I went to the evening church service. I saw some persons working on Sunday—hanging out to dry, drawing and collecting lines, etc.; Chinese, Hawaiians and other racial groups working. I ask you fathers and older brothers, "Is this the way with other sugar mills in your parishes?" If it is not in your parishes then it is a great mischief at Ulupalakua.

Famine or drought in the parish.
Honuaula is a land of drought. The sun is very great and the cane is dry and is crawling, likewise the potatoes, pumpkins and bananas of people in the dryness. Our support these days is the nose of the horse and the wheel of the cart, looking at "the four-waters" [Wailuku, etc.].

Cotton planting.
The main job of several persons is planting cotton and some obtain money from it and are carrying on that work.

The houses of the church.
This church is supplied with lands and site for a church building, no lack there. There is one lack however, and that is a place for the preacher to live in. There is no suitable house. One house is out of repair; it is closed off with mats and full of holes. One house has loosened rafters. If this were a rainy land, then they would ask the preacher. If it were a land of strong gales, then it would turn one way or another. They had thought of repairing it, but it has not been done up to date.

The Lord's Supper.
W.P. Kahale, J.M. Kealoha and W. Kahookaumaha have cared for the church these three quarters… (Hawaiian Evangelical Association, Ms. Trans., by H.P. Judd)

3.4.7 "Na Hiohiona o Ulupalakua"– The Nature of the Land Around Ulupalakua

One of the most interesting native descriptions of lands of the Ulupalakua vicinity was penned by J. Kealohapauole in 1872. In his letter to the editor of the *Ka Nupepa Kuokoa*, Kealohapauole described several heiau, natural features of the lands, and development of the land under the ownership of "Kapena Ki" (Captain James Makee).

Of particular interest is the account of a heiau situated on Puʻu Keʻekeʻehia, from which Kealohapauole says, "You may indeed hear the voices of drums on the nights of Kane and Lono."

This description of the drums being heard is one that is also a common theme with the heiau at that location called “Po-kalani” by Handy’s informants (1940), and as being associated with the heiau by the name of “Kalani” at Kaʻeo, as recorded by Stokes (1916). Robert Kalani and Boogie Luʻuwai shared in their interviews (see Maly & Maly, 2006) that on certain nights when they were young, the sounds of drums could be heard coming from parcels of land neighboring what is now identified as “Kalani Heiau.”

Na Hiohiona o Ulupalaku	***The Appearance of Ulupalakua.***
Eia no keia kulanakauhale, mawaena o na kakai pii e hoopuni ana, a huli aku ia kona alo a nana ia Kahoolawe, a ma kona aoao akau ka puu o Keekeehia, aia maluna pono iho he heiau mai ka po mai, a e lohe ana no oe i ka leo o ka pahu i na po i o Kane a me Lono; a ma ke kua mai na puu o Kaeo a me Makakualele, he puu keia i kanuia me na laau haole a puni, a me na alanui kekee ma na aoao a puni, a he wahi makaikai nui ia e na malihini haole; a ma ka aoao hikina akau na puu o Nakalalua a me Puumahoe. Aia maluna o keia puu, na hale loulu a Kane ma; a aia ma ka aoao makai o ua puu nei, o Kukonakahale, he hale kaulana ia ia ka wa o na alii kahiko loa. Ina ka e nana ia mai e Wailuku, he kohu luakini ka ka nui, a he makaikai ia no kona kahie nei i keia wa. A ma koʻu nana ana, ua eha kaulahao a oi aku ke anapuni o kona kahua.	The village is between the rising cliffs which surround it, and it faces Kahoʻolawe. On the north side is the hill Keʻekeʻehia. There is atop that hill, a *heiau* from ancient times, and from which, on the nights of Kāne and Lono, may be heard the voices of the drums. Behind that, on the hills of Kaʻeo and Makakualele, are planted foreign trees, that surround the hills, and border the crooked road on all sides. It is a place visited by many foreigners. On the northeast are the hills of Nakalalua and Puʻu Māhoe. Atop this hill is a *hale loulu* (temple) of Kāne and companions. On the shoreward side of the hill is Kukonakahale, a famous house in the time of the ancient chiefs. If you have seen the church at Wailuku, it is of similar size. This place is still visited at this time. By my reckoning, the circumference of the platform is four or more chains.
No ka wai—Aole no he pilikia na ka wai e nohoia nei i keia wa, no ka mea, ua hoolako ia mai e Kapena Ki a ua lako pono, “aohe hua kii Kahiki.”	About water—Water is not a problem at this time, for Captain Makee supplied the place abundantly, “the fruit does not need to be brought from afar.”
Na paahana—He oia mau no ka kaikai o ke ola o na kanaka, Pake, Iapana a Borabora hoi. He maluhia, aole haunaele.	The workers—The life of the people is the same. There are Chinese, Japanese, and those from Borabora.

	There is peace, no commotion.
No ka wili-ko—Ke hoomau nei no ka wili ko i ka nau ana i na wahi ko i lukuia ai e kahi makani o ka 9 o Augate aku nei.	About the sugar mill—The mill remains the same, consuming the cane that was knocked down by the wind of this past August 9th.
Ke Kula Sabati—He ano pipi no ka holomua ana o ke Kula Sabati maanei. I kekahi la Sabati, nui na haumana hoopaanaau i na pauku Baibala, a i kekahi manawa hoi, emi hope mai la…	The Sunday School—The Sunday School is sort of like moving forward with cattle here. Some Sabbath days there are many students, who have remembered their Bible verses, and at other times, only a few…
Oiaio. J. Kealohapauole. (Okatoba 7, 1872.)	In Truth. J. Kealohapauole. (October 7, 1872.)

3.4.8 Famine at Honua‘ula Described in 1879

In 1879, *Ka Nupepa Kuokoa* published a letter penned by native D.H. Aukai describing the “great famine” of Honua‘ula as a result of harsh sunlight and drought:

Ko Honuaula mau Anoai. No ka La. Ua nui ka la i keia mau makahiki ekolu, aole wahi mea ua iho, owela ke kula ke nana aku. No ka Wi. Ma Honuaula nei, he nui ka wi, aia no ke ola i Wailuku, o ka poe mea lio hiki i Wailuku, o ka mea lio ole aole e loaa kahi pai ai, o ka uala no ko Honuaula nei ai mau a i keia manawa hoi nei.	**Greetings from Honua‘ula.** About the Sun. There has been much sunshine over these past three years, no drop of rain has fallen, the plains look as if they are blistered by the heat. About the Famine. There is a great famine here at Honua‘ula. Life may be found at Wailuku, for those people who have horses to get to Wailuku. Those who do not have horses cannot get the pa‘i ‘ai (poi bundles). The sweet potato is the regular food of the people at Honua‘ula at this time.
No ka la. O ka ia ka mea e loaa ai o ke pai, ekolu no manini hapalua.	About the Fish. With the fish one can get the *pa‘i* (*‘ai*), three *manini* for half [a bag].
No ke Kula Sabati. Ekolu Kula Sabati o Honuaula nei, ma Kanaio,	About the Sabbath School. There are three Sabbath Schools at Honua‘ula,

Ulupalakua a me Keawakapu, o ka mea e kakau nei oia ke Kahu Kula Sabati, aole no he nui o na haumana. No ka Ekalesia. O Rev. S. K. Kauwe ke Kahu o keia Ekalesia. He ikaika na hoahanau i ka huli dala e pau ai ko lakou pilikia, ua hiki no i keia Ekalesia ke malama iaia iho, me ke kaukai ole aku ia waho mai, ua lulu dala no ka luakini e paa ai, a ua kuai ia i ke pili laau, a ua lulu dala hou iho nei no, no ka hale noho o ke kahu, a ua loaa $200. aia i Honolulu he hiki mai koe o ka laau…	Kanaio, Ulupalakua, and Keawakapu. The author is the overseer of the Sabbath Schools, but there are not many students. About the Church. Rev. S.K. Kauwe is the minister of this Church. The brethren are strong in securing funds to end their troubles, and the church can take care of him (their Kahu), without relying upon others from outside. Donations for the *luakini* (church) have been secured, the wooden shingles have been purchased, and donations have been gotten to make the house for the minister. They got $200. They are awaiting the arrival of the lumber from Honolulu…
D. H. Aukai. (Honuaula, Maui, Aper. 25, 1879.)	D. H. Aukai. (Honuaula, Maui, Apr. 25, 1879.)

3.5 The Māhele ʻĀina and Kuleana Claims: Land Use, Native Tenant Displacement and Title to Land

This section covers several categories of land use, rights, and evolution of land tenure. The various categories are cited chronologically by subject matter. While quite detailed, the review is not exhaustive, but it gives us a context for understanding the landscape as it exists today.

3.5.1 1848-1855: Ka Māhele ʻĀina (The Land Division)

In pre-western contact Hawaiʻi, as previously mentioned, all land and natural resources were held in trust by the high chiefs (Aliʻi ʻai ahupuaʻa, Aliʻi ʻai moku, or Mōʻī). The use of lands and resources were given to the hoaʻāina at the prerogative of the aliʻi and their konohiki, who were generally lesser chiefs as well. Before the 1840s, the lands in the islands were reapportioned among the Aliʻi each time there was a new Mōʻī, while the hoaʻāina were generally allowed to retain use of the land they occupied or cultivated over many generations.

The mid-19th century witnessed a revolutionary transformation in Hawaiian land tenure through the process known as the Māhele. This system of land division, initiated under King Kamehameha III in 1848, privatized land ownership in Hawaiʻi for the first time. Maly & Maly (2005) document how this process affected Kaʻeo and neighboring ahupuaʻa in Makena (p. 40).

The Māhele represented a fundamental departure from traditional Hawaiian concepts of land stewardship, introducing Western notions of private property and fee simple ownership. This transformation was driven by a complex set of factors, including foreign pressure for land access, the Hawaiian monarchy's desire to secure national sovereignty by adopting Western legal frameworks, and internal economic and political changes within Hawaiian society. The implications of this shift were profound and continue to shape land tenure in Hawai'i today (Maly & Maly, 2005, p. 47).

On December 10, 1845, Mō'ī Kauikeaouli (Kamehameha III) signed into law, a joint resolution establishing and outlining the responsibilities of the Board of Commissioners to Quiet Land Titles. The actions called for, and laws to be implemented, were as follows:[11]

Article IV. – Of The Board Of Commissioners To Quiet Land Titles.

Section I. His Majesty shall appoint through the minister of the interior, and upon consultation with the privy council, five commissioners, one of whom shall be the attorney general of this kingdom, to be a board for the investigation and final ascertainment or rejection of all claims of private individuals, whether natives or foreigners, to any landed property acquired anterior to the passage of this act; the awards of which board, unless appealed from as hereinafter allowed, shall be binding upon the minister of the interior and upon the applicant.

Section II. Said commissioners shall, before acting, take and subscribe an oath to be administered to them by the minister of the interior in the following form:

We and each of us do solemnly swear that we will carefully and impartially investigate all claims to land submitted by private parties against the government of the Hawaiian Islands; and that we will equitably adjudge upon the title, tenure, duration and quantity thereof, according to the terms of article four of the seventh chapter of the first part of an act entitled "An act to organize the executive departments of the Hawaiian Island," passed at Honolulu, —— day of ——, 18—.

Subscribed and sworn to, this —— day of ——, 18—.
Before me, ———
Minister of the Interior.

Which oath, having been sworn to, shall remain on file in the interior department.

[11] *The Polynesian*, January 3, 1846, p. 140.

Section III. It shall be the duty of said board of commissioners to select one of their number as president…

Section IV. The president of said board shall, at least once in each month, from the date of their first convention, report their proceedings to the minister of the interior—the number of claims then pending before them—the number to that date confirmed or rejected, and the reasons for confirmation and rejection of any particular claim to land, with all the evidence adduced to and reduced before them.

Section V. It shall be the special duty of board to advertise in *The Polynesian* newspaper, during the continuance of their sessions the following public notice, viz.:

To All Claimants Of Land In The Hawaiian Islands.—The undersigned have been appointed by His Majesty the King, a board of commissioners to investigate and confirm or reject all claims to land arising previously to the __ day of__, 18__ [Dec. 10, 1845].

Patents in fee simple, or leases for terms of years, will be issued to those entitled to the same, upon the report of which we are authorized make, by testimony to be presented to us.

The board holds its stated meetings weekly at ——, in Honolulu, island of Oahu, to hear the parties or their counsel, in defense of their claims; and is prepared, every day to receive in writing, the claims and evidence of title which parties may have to offer, at the ——, in Honolulu between the hours of 9 o'clock A.M. and 3 o'clock P.M.

All persons are required to file with the board specifications of their claims to land, and to adduce the evidence upon which they claim title to any land in the Hawaiian Islands, before the expiration of two years from this date, or in default of doing so, they will after that time be forever barred of all right to recover same, in the courts of justice.

Section VI. The said board shall be in existence for the quieting of land titles during the two years from the first publication of the notice above required, and shall have the power to subpoena and compel the attendance of witnesses by discretionary fine; in like manner, when in session for the hearing of arguments, to punish for contempt; and they shall have the power to administer oaths to witnesses, and to perpetuate testimony in any case depending before them, which, when so perpetuated, shall be valid evidence in any court of justice created by the act to organize the judiciary.

Section VII. The decisions of said board shall be in accordance with the principles established by the civil code of this kingdom in regard to prescription, occupancy, fixtures, native usages in regard to landed tenures, water privileges and rights of piscary, the rights of women, the rights of absentees, tenancy and subtenancy, — primogeniture and rights of adoption; which decisions being of a majority in number of said board, shall be only subject to appeal to the supreme court, and when such appeal shall not have been taken, they shall be final.

Section VIII. All claims to land, as against the Hawaiian government, which are not presented to said board within the time, at the place and in the manner prescribed in the notice required to be given in the fifth section of this article, shall be deemed to be invalid, and shall be forever barred in law, unless the claimant be absent from this kingdom, and have no representative therein.

Section IX. The minister of the interior shall issue patents or leases to the claimants of lands pursuant to the terms in which the said board shall have confirmed their respective claims, upon being paid the fees of patenting or of leasing (as the case may be) prescribed in the third part of this act, unless the party entitled to a lease shall prefer to compound with the said minister in the succeeding section allowed.

Section X. The minister of the interior shall have power in concurrence with the privy council, and under the sanction of His Majesty, to issue to any lessee or tenant for life of lands so confirmed, being an Hawaiian subject, a patent in fee simple for the same, upon payment of a commutation to be agreed upon by his Majesty in privy council.

Section XI. The patents and lease issued in accordance with the award of said commissioners, shall be recorded at the expense of the patentee or lessee, as prescribed in the third part of this act, in a book to be kept for that purpose by the minister of the interior.

Section XII. The said board shall not have power to entertain any claims to lands set up by any private person or persons until the claimant shall have deposited with the minister of finance a bond conditioned to defray the costs and expenses incident to the proposed investigation, according to the rates of charge prescribed in the third part of this act; which costs and expenses, shall, after award rendered, be taxed by the president of said board, and a certificate thereof shall be given to the claimant who shall exhibit the same to the minister of finance, whose certificate of full payment, together with the award of the commissioners, shall authorize the delivery of the awarded patent or lease to such confirmed claimant, by the minister of the interior, and not without.

> Section XIII. The titles of all lands claimed of the Hawaiian government anterior to the passage of this act, upon being confirmed as aforesaid, in whole or in part by the board of commissioners, shall be deemed to be forever settled, as awarded by said board, unless appeal be taken to the Supreme Court, as already prescribed. And all claims rejected by said board, unless appeal be taken as aforesaid, shall be deemed to be forever barred and foreclosed, from the expiration of the time allowed for such appeal.

During the Māhele, portions of Kaʻeo were designated as Crown Lands, Government Lands, and Konohiki Lands (held by chiefs). Native tenants who had traditionally lived and worked on the land were eligible to make claims for kuleana (small land parcels). Maly and Maly's (2005) research identifies numerous LCAs granted within Kaʻeo to native Hawaiian residents, documenting their traditional land use patterns and agricultural practices (p. 42).

The testimony provided by claimants during the Māhele process offers valuable ethnographic information about traditional land use in Kaʻeo. Claimants typically described their parcels in terms of the crops they cultivated, the structures they had built, and the length of time their families had occupied the land. Common crops mentioned in these testimonies included sweet potatoes, dryland taro, gourds, sugarcane, bananas, and various trees including coconut, kukui, and ʻulu (breadfruit) (Maly & Maly, 2005, p. 49).

The report includes testimonies from kuleana claimants that provide valuable insights into traditional land use in Kaʻeo. These testimonies describe cultivated areas, house lots, and resource gathering areas that had been used by families for generations. The descriptions of land use from this period help to reconstruct the cultural landscape of Kaʻeo prior to the major changes of the late 19th and early 20th centuries (Maly & Maly, 2005, pp. 44-48).

Many of these testimonies also referenced boundaries defined by natural features or constructed markers, neighbor relationships, and traditional place names. This information not only helped establish the legitimacy of claims but also preserved aspects of indigenous geographic knowledge that might otherwise have been lost during the transition to Western land ownership systems. The integration of traditional place names and land use descriptions in these legal documents created a bridge between indigenous and Western conceptions of land (Maly & Maly, 2005, p. 50).

Witnesses who testified in support of kuleana claims often included neighbors, konohiki, and other community members familiar with traditional land use patterns. Their testimonies provide additional perspectives on land use and community relationships in Kaʻeo. The witness statements sometimes included information about historical events,

changes in land use over time, and customary resource rights that extended beyond the boundaries of individual parcels.

As the Māhele evolved, it defined the land interests of the Mōʻī (Kamehameha III), the Aupuni (Government), and approximately 252 high-ranking Aliʻi and Konohiki. Also included in the Māhele were numerous foreign residents who had served the Kamehamehas and representatives of the A.B.C.F.M. As a result of the Māhele, all land in the Kingdom of Hawaiʻi came to be placed in one of three categories: (1) Crown Lands (ʻĀina Lei Aliʻi) for the occupant of the throne; (2) Konohiki Lands (ʻĀina Konohiki) for notable chiefs and those who provided service to the Kingdom; and (3) Government Lands (ʻĀina Aupuni) to be used in support of public initiatives and as a means of providing land to those who did not acquire land in the Māhele.

The initial Māhele between the Mōʻī, the Konohiki, and Aupuni was recorded in the "*Buke Kakau Paa no ka Mahele Aina i hooholo ia iwaena o Kamehameha 3 a me na Lii a me na Konohiki ana*. Hale Alii Honolulu. Ianuari 1848" (*Buke Māhele*). Table 1 is excerpted from the *Buke Māhele* (1848) and is the record of settlement of original title for several ahupuaʻa within Honuaʻula Moku, as originally claimed by Moses Kekuaīwa, a grandson of Kamehameha I. High Chief Kekuaīwa relinquished Paeahu and other lands in the district to his uncle, Mōʻī Kamehameha III. Subsequently, the King conveyed his interest in Paeahu to the ʻĀina Aupuni inventory, from which four large sections were divided. The largest to James Young Kanehoa, a high chief and governor of Maui, and three foreigners (Warren Goodale, Wm. Wilcox and Wm. Fredenberg), with a few smaller parcels being awarded to several native tenants.

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Table 1. Disposition of Ahupua‘a in the Moku of Honua‘ula Recorded in the Buke Māhele of 1848

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Ko Kamehameha III

Na Aina	Ahupuaa	Kalana	Mokupuni
Paeahu	Ahupuaa	Honuaula	Maui
Waipao	Ahupuaa	Honuaula	Maui
Moopilo 1&2	Ahupuaa	Honuaula	Maui
Maluaka	Ahupuaa	Honuaula	Maui
…Ianuari 27, 1848			
Paeahu	Ahupuaa	Honuaula	Maui

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Ko Mose Kekuaiwa

Na Aina	Ahupuaa	Kalana	Mokupuni
Note: Dec. 22, 1849 Resolution: Resolved, that the property given by Moses Kekuaiwa to the Government on the first day of January, 1847 as a security for his good conduct, be and is hereby returned to M. Kekuanaoa, the duly appointed administrator of the estate of the said Moses Kekuaiwa, Deceased…			
…Ianuari 27, 1848			
Waipio	Ahupuaa	Honuaula	Maui
Moopilo 1&2	Ahupuaa	Honuaula	Maui
Maluaka 2	Ahupuaa	Honuaula	Maui
Papaa	Ahupuaa	Honuaula	Maui

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Ko Kamehameha III

Inoa o na Aina	Ahupuaa	Kalana	Mokupuni
Aweoweo	Ili no Ukumehame	Lahaina	Maui

…Page 201

No Ke Aupuni

Inoa o na Aina	Ahupuaa	Kalana	Mokupuni
Kahoolawe no Aupuni G.P. Judd…			
Kamaole	Ahupuaa	Kula	Maui…
Mooiki	Ahupuaa	Honuaula	Maui

Ko Kamehameha III				**No Ke Aupuni**			
Inoa o na Aina	Ahupuaa	Kalana	Mokupuni	Inoa o na Aina	Ahupuaa	Kalana	Mokupuni
				Paeahu	Ahupuaa	Honuaula	Maui
				Waipio	Ahupuaa	Honuaula	Maui
				Moopilo 1&2	Ahupuaa	Honuaula	Maui
				Maluaka 2	Ahupuaa	Honuaula	Maui
				Papaa	Ahupuaa	Honuaula	Maui

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3.5.2 The "Kuleana Act"

On December 21, 1849, the "Enabling" or "Kuleana Act" of the Māhele further defined the framework by which hoa'āina could apply for and be granted fee-simple interest in "Kuleana" lands. The Kuleana Act also reconfirmed the rights of hoa'āina to access subsistence and collection of resources necessary to their life upon the land in their given ahupua'a. The Kuleana Act, which remains the foundation of laws pertaining to native tenant rights in the present-day sets forth the following conditions:

August 6, 1850

An Act confirming certain resolutions of the King and Privy Council passed on the 21st day of December 1849, granting to the common people allodial titles for their own lands and house lots, and certain other privileges. Be it enacted by the Nobles and Representatives of the People of the Hawaiian Islands in Legislative Council assembled.

That the following sections which were passed by the King in Privy Council on the 21st day of December A.D. 1849 when the Legislature was not in session, be, and are hereby confirmed, and that certain other provisions be inserted, as follows:

Section 1. Resolved. That fee simple titles, free of commutation, be and are hereby granted to all native tenants, who occupy and improve any portion of any Government land, for the land they so occupy and improve, and whose claims to said lands shall be recognized as genuine by the Land Commission; Provided, however, that the Resolution shall not extend to Konohikis or other persons having the care of Government lands or to the house lots and other lands, in which the Government have an interest, in the Districts of Honolulu, Lahaina and Hilo.

Section 2. By and with the consent of the King and Chiefs in Privy Council assembled, it is hereby resolved, that fee simple titles free of commutation, be and are hereby granted to all native tenants who occupy and improve any lands other than those mentioned in the preceding Resolution, held by the King or any chief or Konohiki for the land they so occupy and improve. Provided however, this Resolution shall not extend to house lots or other lands situated in the Districts of Honolulu, Lahaina and Hilo.

Section 3. Resolved that the Board of Commissioners to quiet Land titles be, and is hereby empowered to award fee simple titles in accordance with the foregoing Resolutions; to define and separate the portions belonging to different individuals; and to provide for an equitable exchange of such different portions where it can be done, so that each man's land may be by itself.

Section 4. Resolved that a certain portion of the Government lands in each Island shall be set apart and placed in the hands of special agents to be disposed of in lots of from one to fifty acres in fee simple to such natives as may not be otherwise furnished with sufficient lands at a minimum price of fifty cents per acre.

Section 5. In granting to the People, their House lots in fee simple, such as are separate and distinct from their cultivated lands, the amount of land in each of said House lots shall not exceed one quarter of an acre.

Section 6. In granting to the people their cultivated grounds, or Kalo lands, they shall only be entitled to what they have really cultivated, and which lie in the form of cultivated lands; and not such as the people may have cultivated in different spots, with the seeming intention of enlarging their lots; nor shall they be entitled to the wastelands.

Section 7. When the Landlords have taken allodial titles to their lands the people on each of their lands shall not be deprived of the right to take firewood, aho cord, thatch, or ti leaf from the land on which they live, for their own private use, should they need them, but they shall not have a right to take such articles to sell for profit. They shall also inform the Landlord or his agent, and proceed with his consent. The people shall also have a right to drinking water, and running water, and the right of way. The springs of water, and running water, and roads shall be free to all should they need them, on all lands granted in fee simple. Provided, that this shall not be applicable to wells and water courses which individuals have made for their own use. Done and passed at the Council House, Honolulu this 6th day of August 1850.[12]

Typically, one of the most important sources of documentation that describes Native Hawaiian residency, traditional and customary practice, and land-fishery uses—identifying specific residents, resource collections, types of land use, crops cultivated, and features on the landscape—is found in the records of the Māhele and the Native Tenant Kuleana Claims. While the Act gave the hoa‘āina an opportunity to acquire fee-simple property interest (kuleana) on land on which they lived and actively cultivated, the process required them to provide personal testimonies regarding their residency, right to claim, and land-use practices. As a result, kuleana records present first-hand accounts from native tenants generally spanning the period from 1778, just after Western contact, to 1855.

[12] Copied from original handwritten “*Enabling Act*,” Hawai‘i State Archives, DLNR 2-4. For additional information, see also “*Kanawai Hoopai Karaima no ko Hawaii Pae Aina*” (Penal Code) 1850.

The lands awarded to the hoa‘āina became known as “Kuleana Lands.” All of the claims and awards (LCAs) were given a Helu (number). Some Helu were repeated, necessitating the addition of alphabet letter(s) to the Helu. The LCA designations remain in use today to identify the original owners, as well as the metes and bounds of lands in Hawai‘i. The work of the Land Commission was ended on March 31, 1855. The program, directed by principles adopted on August 20, 1846, was met with mixed results. In its statement to the King, the Commissioners to Quiet Land Titles summarized events that had transpired during the life of the Commission:

> …The first award made by the Commission was that of John Voss on the 31st of March 1847.
>
> The time originally granted to the Board for the hearing and settlement of all the land claims in the kingdom was two years, ending the fourteenth day of February 1848.
>
> Before the expiration of that term, it became evident that a longer time would be required to perform a work.… Accordingly, the Legislature on the 26th day of August 1847, passed an Act to extend the duration of the Board to the 14th of February 1849, adding one year to the term first prescribed, not however, for the purpose of admitting fresh claims, but for the purposes of hearing, adjudicating and surveying those claims that should be presented by the 14th of February, 1848. It became apparent to the Legislature of 1848 that the labors of the Land Commission had never been fully understood, nor the magnitude of the work assigned to them properly appreciated, and that it was necessary again to extend the duration of the Board. An act was accordingly passed, wisely extending the powers of the Commissioners “for such a period of time from the 14th day of February 1849, as shall be necessary for the full and faithful examination, settlement and award upon all such claims as may have been presented to said Board.” …[T]he Board appointed a number of Sub-Commissioners in various parts of the kingdom, chiefly gentlemen connected with the American Mission, who from their intelligence, knowledge of the Hawaiian language, and well-known desire to forward any work which they believed to be for the good of the people, were better calculated than any other class of men on the islands to be useful auxiliaries to the Board at Honolulu.…
>
> During the ten months that elapsed between the constitution of the Board and the end of the year 1846, only 371 claims were received at the office; during the year 1847 only 2,460, while 8,478 came in after the first day of January 1848. To these are to be added 2,100 claims, bearing supplementary numbers, chiefly consisting of claims which had been forwarded to the Board, but lost or destroyed on the way.

> In the year 1851, 105 new claims were admitted, for Kuleanas in the Fort Lands of Honolulu, by order of the Legislature. The total number of claims, therefore, amounts to 13,514, of which 209 belonged to foreigners and their descendants. The original papers, as they were received at the office, were numbered and copied into the Registers of the Commission, a highly necessary part of the work, which entailed no small amount of labor.…
>
> The whole number of Awards perfected by the Board up to its dissolution is 9,337, leaving an apparent balance of claims not awarded of say 4,200. Of these, at least 1,500 may be ranked as duplicates, and of the remaining 2,700 perhaps 1,500 have been rejected as bad, while of the balance some have not been prosecuted by the parties interested; many have been relinquished and given up to the Konohikis, even after surveys were procured by the Board, and hundreds of claimants have died, leaving no legal representatives. It is probable also that on account of the dilatoriness of some claimants in prosecuting their rights before the Commission, there are even now, after the great length of time which has been afforded, some perfectly good claims on the Registers of the Board, the owners of which have never taken the trouble to prove them. If there are any such, they deserve no commiseration, for every pain has been taken by the Commissioners and their agents, by means of oft repeated public notices and renewed visits to the different districts of the Islands, to afford all and every of the claimants an opportunity of securing their rights.[13]

By the time of its closure, the total land area in the Hawaiian Islands awarded to hoa‘āina only came to approximately 28,658 acres.[14] Documenting the Māhele in 1848-1855 was a monumental task for the Land Commission and its agents. While the generations since the Māhele are fortunate to have the records, it is evident that there were many problems at the time of recordation. These problems present some questions that will never be answered and require educated assumptions to be made based on standard practices of residency and land use and requirements of the Māhele application process at the time, to better understand the recorded information.

Several important points should be kept in mind when reviewing the verbatim translations of Kuleana documents cited herein.[15] These include, but are not limited to, the following observations—

[13] George M. Robertson, March 31, 1855, Kingdom of Hawaii, Minister of Interior Report, Feb. 20, 1856, pp. 10-17 (Collection of the Hawaii State Archives).
[14] See Board of Commissioners, 1929, and Kame‘eleihiwa, 1992, p. 295.
[15] All Hawaiian language texts of the Paeahu kuleana claims were reviewed as a part of this study, and the translations prepared by Kepā Maly.

(1) Transcription Errors:

Original transcribers taking notes at the time of witness presentations were often confused about names they heard. In many instances, the English translation originally recorded in the volumes of the "Foreign Testimony" gave place names as personal names and personal names as places names. Additional layers of confusion were subsequently overlaid by the 1929, "*Indices of Awards Made by the Board of Commissioners to Quiet Land Titles in the Hawaiian Islands*", and once again by translators working at the Archives of Hawai'i (now Hawai'i State Archives - HSA).

No disrespect is meant in the following statements, but both document collections, which are the primary source for many researchers are problematic and often inaccurate when compared with the original Hawaiian language texts. Sadly, even some of the original texts include obvious discrepancies. These issues could have implications in land use classifications and land holding, or title issues. Examples of these issues are found in Paeahu as well, and include but are not limited to:

Named Hoa'āina:

- Kaneioholani, Kaneiholani and Kaniholani
- Ko'ukaina and Koukaina
- Kaakole and Kaakaole

Named 'Ili:

- Alamanini or Kahikamanini (shoreside village in Paeahu)
- Haka or Hakaa
- Paouou or Paauau
- Pohopoho o Hoa or Popohoa

Additionally, the 1929 Indices of Awards presents another weakness in that the publication focused on the awarded claims, leaving thousands of claims only identified by Helu, with no indication of who the claimant was, or the location(s) of the 'āina. This has significant consequences when archaeologists encounter cultural properties in the field, and cannot explain, "why?". Their review of the 1929 Indices, leads one to believe that a much smaller number of claimants existed and that only a limited number of features might be expected in any given area.

The HSA archivists also undertook the significant task of translating all Hawaiian documents of the Register and Testimony books, in order to help make the records more accessible. Relying on the original handwritten volumes as their source of information, but unfortunately another layer of errors was sometimes added to the record—most of which are simple typographical errors. Because the translated texts are those which receive the most use in present-day land history research, many

errors, which are not a part of the original records, are repeated as fact. These errors include discrepancies in the types of land use reported, and transposing of both people and land names, and in transposing Helu.

(2) Documentation is Vague or not Recorded:

There are many claims in the Register and Testimony that provide no verbal description of cultivation or residence. Based on the requirement of the Law (the Kuleana Act; Dec. 21, 1849), this should not be interpreted as the absence of such features or land use, but instead, a weakness in the original process of recordation. The Kuleana Act (cited above) specifically limited native tenant claims to ʻāpana (parcels or lots) of land which they actively cultivated, and on which they resided. Thus, such features would occur.

One notable discrepancy is found in a land use designation in many of the Paeahu – Honuaʻula District claims. Numerous Hawaiian applicants identified an ʻāpana as "kula." Unfortunately, the HSA translations used the historic translation of "pasture" when translating the word "kula." Ancient use of the word "kula" described an open land area and was also a term used across the islands to describe a dryland agricultural plot/field. This was sometimes further defined by describing a particular crop, like kula ʻuala, kalo, or kula ʻuala haole (field of Irish potatoes). As a result, countless claims suggest that the claimants had a "pasture," which leads one to assume that there are few, if any, other features on the land.

(3) Access:

While there are limited references to the native trails (ala hele) or historic "roadways" (e.g. mauka-makai trails, the larger Alaloa and Ala- or Alanui-Aupuni), documentation of trails is provided in the claims. Based on traditional and customary practices associated with residency and subsistence practices, the occurrence of trails across the cultural landscape may be observed. The rights of native tenants to access, both within their ahupuaʻa and to the larger public byways, are prescribed in both traditional and historic laws. In the case of the mauka-makai trails, the record of land use also tells us that such trails existed in each ahupuaʻa. This is substantiated by the descriptions of various kuleana parcels (claimed by individual tenants) that cross several land use and elevational zones (for example near the shore, then on the kula, and in the forest).

In 2000, the research team of Kumu Pono Associates, LLC digitized all of the records made a part of the Native and Foreign Register and Testimony volumes, the Māhele

Award Books and Royal Patents on Awards.[16] As a part of this study, we reviewed all of the records and found that at least sixteen (16) native tenants filed twenty-one (21) claims for land at Paeahu. Through our translations of the original Hawaiian texts, we seek to provide readers with a more accurate understanding of the nature of residency, land use, the types of features that may yet be encountered on the ʻāina. The documents also described events that led to the displacement of many native tenants of Paeahu. It is appropriate to share that the descendants of some of these early residents may be identified and may still wish to be a part of preservation and stewardship initiatives that will be planned for long-term management of the biocultural landscape within Paeahu.

3.5.3 Makee Family Land Tenure in Honuaʻula (1854-1920)

In 1854, Captain James Makee, acquired his first interest in the holdings of Linton Torbert's Ulupalakua Plantation, including portions of Kaʻeo. By 1858, Torbert's economic problems led him to convey all his remaining interests in the Honuaʻula lands to Makee, and from that time until his death in 1879, Makee ran the Ulupalakua holdings (Maly & Maly, 2005, p. 172).

On January 7, 1878, James and Catherine Makee conveyed a portion of their interests in lands of the "Rose Ranch" at Ulupalakua, to their son, Parker Makee. In September 1879, James Makee died, and shortly before his death, additional lands of the "Rose Ranch" were conveyed to the Makee children with additional interests conveyed in 1883 and 1885 (Maly & Maly, 2005, p. 172). Cultivation of sugar on the Ulupalakua lands ended in 1883 and the owners focused on ranching interests. In 1886, James Dowsett acquired interest in the ranch lands from heirs of the Makee estate, including his own daughter, Phoebe, who had married Charles Makee. Lands that made up Makee's "Rose Ranch" remained basically as described in the earlier conveyances to James Makee.

Under Dowsett's management, the ranch also acquired additional lands and continued to exercise its' leasehold interest in lands of the larger Honuaʻula District. One parcel acquired by Dowsett was the LCA awarded to Kohilae (Helu 2401), which was conveyed to Malie Aukai from her adoptive father, Wahinekane, in 1885. Malie Aukai sold the kuleana to Dowsett on May 16, 1896. Another parcel that was purchased by Dowsett was the lot and building at Mākena Landing that G. Akuna purchased from John Kukahiko in 1892. Akuna sold the parcel to Dowsett on March 14, 1898 (Maly & Maly, 2005, p. 172).

When James Dowsett died in 1898, his interests in lands of the "Rose Ranch" (Ulupalakua) were consolidated under the interests of his daughter Phoebe and husband

[16] Digital copies selected claims which provide details about the source of title and some features are included as unnumbered figures from the Paeahu claims. The full set of records has been transferred to Honua Consulting for future reference and program development.

Charles Makee. Upon the death of Charles Makee, Phoebe Dowsett-Makee married James H. Raymond, and the Raymond interests were established at Ulupalakua (Maly & Maly, 2005, p. 172).

On October 20, 1882, Palupalu, son and heir of Kanakahou, conveyed for $65.00 his inherited interest LCA Helu 2427 at Moʻoiki (on the boundary with Maluaka) and Royal Patent Grant No. 1289 (situated at Moʻoloa) to Kukahiko. Helu 2427 contains 10.90 acres and Royal Patent Grant No. 1289 contains 7.45 acres (Maly & Maly, 2005, p. 173).

3.5.4 Sampling of Conveyances Recorded in Records of the Bureau of Conveyances and Publications

While mapping of the kuleana in Paeahu and the larger Honuaʻula moku has been the subject of questions regarding "lost" lands, Registered Map No. 4131 (Figure 6) includes reference points for some of the kuleana and grant parcels of Paeahu. One of the more interesting reference points on the map includes the location of LCA 10,665 to Pipio (Piopio) and a rock wall identified as Boundary following along stone wall & fence, "generally near the boundary of Paeahu and Kamaʻole."[17] Further mauka on the same map are found references to LCA 5265-B Ap. 2 of Kaneioholani, and the boundaries of the grant lands sold to J.Y. Kanehoa, William Fredenberg, and William Wilcox.

> **March 1st, 1852**
> **Warren Goodale to David B. Lyman**
> **Mortgage Deed**
> **Covering 470 acres of land at Paeahu**
>
> Know all men by these presents, that I Warren Goodale of Honolulu, for and in consideration of the sum of Five Hundred dollars to me in had paid by D. B. Lyman of Hilo, Hawaii, receipt whereof I hereby confess and acknowledge, have granted, bargain sold, remised, released, aliened and formed… unto the said D. B. Lyman and to his heirs, executors, administrators & assigns all the certain piece or parcel of land situate at Pauahi, Honuaula, Island of Maui, Hawaiian Islands, known and escribed as follows, viz:
>
> Commencing at N.E. corner of Saffery's lands on border of Kamaole S. 75º E. 123 chains; thence along uppers side of forest, S. 38 ¼º W. 38.30 chains; Thence West 102 chains along Palauea; Then N. 15º E. .31 chains along Pikanele; Thence S. 70º E. 10.32 chains and North 15º East 20 chains and N. 75º W, 19 32 chains along Davida Malo's lands; Thence North 15º E. 2 chains & N. 75º W. 5.16 chains

[17] This boundary along the stone wall and fence was later found to be in error.



Figure 6. Registered Map No. 4131 Portion of Ulupalakua Ranch (July 31, 1964)

along Keohokaloles; thence N. 15º E. 20 chains along Saffery to place of Commencement. Containing 470 acres.

To have and to hold the said above described premises, together with all and singular tenements, hereditaments and appurtenances there unto belong to the said David B. Lyman, his heirs, executors and administrators or assigns forever.

These present are given upon this express condition however, that whereas the said David B. Lyman had loaned to the undersigned the said sum of Five hundred dollars for which the interest to accrue there on a promissory note of concurrent date has been given to which this mortgage is collateral.

Now if the said Warren Goodale…. Shall well and faithfully pay or cause to be paid the sum of Five hundred dollars, according to the tenor of the said note on or before the 1st day of March 1853, and the interest thereon at one per cent per month, then this indenture of mortgage to be void…

[Signed Warren Goodale and David B. Lyman]
[Release of Mortgage Deed]

In consideration of Five Hundred Dollars & all interest due in the promissory note made to me by Warren Goodale, I do hereby release & forever quit claim unto Warren Goodale all my right, title & interest in the land & premises described in the subject Deed of Mortgage & declare the same deed canceled… this 4th day of June A.D. 1859… (Mortgage Deed Book 1, pp. 552-553)

March 3, 1886
P. N. Makee et al. to J. I; Dowsett
Deed

This indenture made this 3rd day of March A.D. 1886 by and between Parker Norton Makee of Waihee… Wilhelmina H. Spalding and Z. S. Spalding her husband of Kapaa, Island of Kauai… Julia A. Kitchen and M. L. W. Kitchen her husband of New York… Helen G. Noonan and Dennis Noonan her husband of Chico, State of California… Alice C, Hasting and Fran P. Hastings, her husband of Honolulu… Charles B. Makee… Kate L. Makee and Phoebe K. Makee, Rose W. Makee of Ulupalakua… of the first part of James I. Dowsett of said Honolulu of the second part…

…Said parties of the first part for and in consideration of the sum of Eighty Four Thousand and Five Hundred Dollars ($84,500) to them paid… have given, granted, bargained, sold and conveyed… unto the party of the second part… All of those

tracts and parcels of land situated in the Districts of Kula and Honuaula… comprising all of the premises known as Rose Ranch, and more particularly described or referred to in the Schedule of Deed below written, marked Exhibit A and made a part hereof. Excepting and reserving however all of that tract of land situated at _____ [blank] in said District of Honuaula, described as follows…:

[Recital describes an area of 5.68 acres, excluding sugar mill equipment and other effects…]

Schedule "A" Deeds

(1) Deeds from Chas. Brewer 2d. to James Makee, dated March 7th, 1856 of record in Lib. 7 fol. 403.
(2) Deed from L.L. Torbert to James Makee dated Aug. 30th, 1858 of record in Liber 11 fol. 47.
(3) Deed from Chas. Brewer 2d. to James Makee dated Sept. 4, 1858 of record in Lib. 11 fol. 51.
(4) Deed from Hoomanawanui and Hikiau to James Makee dated Sept. 10, 1856 of record in Lib. 8 fol. 201.
(5) Deed from W.C. Parker Marshal of the Hawaiian Islands to James Makee dated Aug. 21, 1862 of record in Lib. 15 fol. 368. [Grant 3335]
(6) Deed from W.C. Parker Marshal of the Hawaiian Islands to James Makee dated Aug. 21, 1862 of record in Lib. 15 fol. 369.
(7) Deed from W. Wilcox to James Makee dated Jan. 22nd, 1863 of record in Lib. 16 fol. 291.
(8) Deed from Keohokalole to James Makee dated April 20, 1863 of record in Lib. 70 fol. 162. [Grant 547, Grant 449]
(9) Deed from Honolulu, Kahoopiopio and Kamalii to James Makee dated March 22, 1863 of record in Lib. 70 fol. 163.
(10) Deed from Honolulu, Kahoopiopio and Kamalii to James Makee dated March 22, 1863 of record in Lib. 70 fol. 164.
(11) Deed from James W. Austin to James Makee dated May 2d, 1864 of record in Lib. 21 fol. 13.
(12) Deed from A. Manaku and Maunahina Shaw Admrs. Est. of George Shaw to James Makee dated June 1st, 1866 of record in Lib. 28 fol. 270.
(13) Deed from Chas. C. Harris, Admr. Est. of L. Haalelea to James Makee dated Aug. 3, 1866 of record in Lib. 22 fol. 34.
(14) Deed from Thomas H. Hobron to James Makee dated July 24th, 1867 of record in Lib. 24 fol. 159.
(15) Deed from James Humphreys to James Makee dated Dec. 19, 1868 of record in Lib. 26 fol. 428 [482?].

(16) Deed from Makaiaweawe, Kalilike, Koliola, and Kaoi to James Makee dated May 30th, 1870 of record in Lib. 33 fol. 308.
(17) Deed from Kalili to James Makee dated May 9, 1870 of record in Lib. 33 fol. 274.
(18) Deed from Wainee to James Makee dated Nov. 3rd 1870. [Grant 1690]
(19) Deed from Paaluhi and Aiai his wife to James Makee dated Jan. 24, 1871 of record in Lib. 32 fol. 20.
(20) Royal Patent 3082 (Grant) to James Makee dated Mar. [?] 1871.
(21) Deed from Keaho to James Makee dated June 18th 1871 of record in Lib. 33 fol. 276.
(22) Deed from John Brown to James Makee dated June 18th, 1871 of record in Lib. 33 fol. 276.
(23) Deed from Emma M. Kapena and John M. Kapena to James Makee dated Oct. 23rd 1872 of record in Lib. 36 fol. 143
(24) Deed from H. R. Macfarlane Admr. Est. of J. S. Lemon to Catherine N. Makee dated June 13th, 1882 of record in Lib. 76 fol. 491.
(25) Deed from Kalua to Catherine Makee dated Sept. 30th 1882 of record in Lib. 75 fol. 468.
(26) Deed from Kalua to Catherine Makee dated Oct. 2nd 1882 of record in Lib. 75 fol. 469. [Grant 468]
(27) Deed from John Kukahiko to Catherine Makee dated Jan. 8, 1883 of record in Lib. 77 fol. 188-189.
(28) Deed from Frank Kaninau et al. to Catherine Makee dated Jan. 9th, 1883 of record in Lib. 78 fol. 194-195. [Grant 546]
(29) Deed from Maukaa and Wm Sylva to Catherine Makee dated Nov. 18th, 1882. [Unrecorded/Unidentified]
(30) Deed from S. Kaaiai et al to Catherine Makee dated Nov. 7th, 1882 of record in Lib. 76 fol. 459.
(31) Deed from P. Kaku to Catherine Makee dated May 18, 1883 of record in Lib. 81 fol. 118.
(32) Deed from Kauhi to P. N. Makee et al dated April 7th, 1885. [Unrecorded/Unidentified]
(33) All of the right, title and interest of the parties of the first part in and to the premises described in Royal Patents Nos. 1289, 2473 and 468 and in and to all Kuleanas in any of the premises above referred to…

Schedule “B” Leases.
(1) Lease from the Hawaiian Government of the Ahupuaa of Kanaio.

(2) Lease from John M. Kapena to James Makee dated Dec. 22nd, 1876, of record in Lib. 47 fol. 498-499… (Liber 101:200-206)[18]

The Hawaiian Gazette
August 26, 1890 (page 10)

Mortgagee's Notice of Foreclosure.

In accordance with the provisions of a certain mortgage made by S P Halama and Keliimahiai of Mākena, Island of Maui, to Mrs. Elizabeth Beckwith of Honolulu, Island of Oahu, dated October 12, 1888, recorded Liber 115, page 214; notice is hereby given that the mortgagee intends to foreclose the same for condition broken, to-wit: non payment of interest.

Notice is likewise given that after the expiration of three weeks from the date of this notice the property conveyed by said mortgage will be advertised for sale at public auction, at the auction rooms of Jas F Morgan, in Honolulu, on Monday, the 22nd day of September, 1890, at 12 o'clock noon of said day.

Further particulars can be had of W R Castle.
Dated Honolulu, August 26, 1890.
Mrs. Elizabeth Beckwith, Mortgagee.

The premises covered by said mortgage consist of:

1st—Of 75 89-100 acres situate in Honuaula, Island of Maui, near Puumahoe, conveyed to said S P Halama by deed of Poohina, recorded in Liber 52, page 247.

2nd—Of 17 acres situate in Paeahu, Honuaula, near the kula line, conveyed to the said mortgagor Halama, by deed of W Goodale, recorded in Liber 1, page 454.

The Pacific Commercial Advertiser
December 2, 1891 (page 2)

Auction Sale of Valuable Real Estate!

The Sale of the Seal Property, advertised for Monday, Nov. 30th, has been postponed to

Saturday, Dec. 5, 1891

[18] On July 30th, 1886, J. I. Dowsett entered into a Mortgage Deed with Bishop & Company, in the amount of $50,000.00 on the purchase and agreements referred to in the instrument above; and recorded in Liber 101:206-212. The mortgage was paid in full on January 13th, 1900 (records over Liber 101:206).

At 12 Noon
At the Auction Room of Jas. F. Morgan, Queen Street, Honolulu.

…Also an undivided four-ninths interest in two pretty lots near the Waikapu Plantation buildings in Waikapu, Maui and also an undivided third in 69 acres in Paeahu, in Honuaula, Maui of which 19 acres are in one lot near the sea, and 50 acres are near the Kula road in three lots.

This land is all of the finest quality, and well worth anyone's attention either as an investment for future rise or present cultivation.

Further information will be furnished by
W.R. Castle.

The Hawaiian Gazette
July 28, 1896 (page 8)

Mortgagee's Notice of Foreclosure.

In accordance with the provisions of a certain mortgage made by M. Kealoha of Honuaula, Maui, to W.R. Castle, Trustee of Honolulu, Oahu, dated February 19th, 1891, recorded Liber 132, page 91, notice is hereby given that the mortgagee intends to foreclose the same for condition broken, to-wit: non-payment of both interest and principal.

Notice is likewise given that after the expiration of three weeks from the date of this notice, the property conveyed by said mortgage will be advertised for sale at public auction, at the auction rooms of Jas. F. Morgan, in Honolulu, on Monday, the 24th day of August, 1896, at 12 noon of said day.

Further particulars can be had of W.R. Castle.

Dated Honolulu, July 27, 1896.

W.R. Castle, Trustee, Mortgagee

The premises covered by said mortgage consist of:

All of those certain tracts or parcels of land situate in Honuaula, Island of Maui, described as follows:

1st. 75 89-100 acres in said Honuaula near Puumahoe, in R.P. L.C.A. conveyed to S.P. Halama by deed of Poohina, recorded in Liber 52, page 247.

2nd. 17 acres in Paeahu, Honuaula, conveyed to S.P. Halama by deed of W.G.

Goodale, recorded in Liber 1, page 454.

3rd. 11 3-10 acres in R.P. 1392 to Kapiina.

4th. 17 53-100 acres in R.P. 1233 to Kapiina.

5th. 36 9-10 acres in R.P. 1388 to Pahia.

6th. 5 5-10 acres in R.P. 6408 to Kila. All of the above mentioned premises being the same conveyed to M. Kealoha by deed of W.R. Castle, recorded in Liber 130, page 195.

The Pacific Commercial Advertiser
July 30, 1900 (page 5)

Glanders is Spreading on Maui. More Than 300 Horses Have Been Stricken at Ulupalakua Ranch.

Maui, July 28, 1900.—Ulupalakua Ranch has suffered severely by the epidemic of glanders among its horses. Several years ago the ranch was one of the best on the islands for the raising and breeding of horse-flesh, but to-day it has scarcely enough saddle animals for the use of its manager and employees. During the past year it is estimated that about 300 horses have succumbed to the disease at Ulupalakua and vicinity and that the ranch has lost about $8,000 by the death of horses, one thorough-bred stallion alone being valued at $3000.

It is feared that the disease has been communicated to the horses of Kamaole, Keokea and Waiohuli. During the visit of Dr. Shaw four horses belonging to S. Ahmi of Kamaole were ordered killed.

The boundary line between Ulupalakua and Kula (Kamaole) is fenced excepting a gulch up the mountain through which it is possible for Kula horses to pass when on their way down from Polipoli spring higher up the slope. It is supposed in this manner Kula horses have mingled with the diseased animals of Ulupalakua and possibly become infected.

The Government should authorize some capable agent to thoroughly inspect the horses of Kamaole, Keokea, Waiohuli and vicinity.

The Independent
August 14, 1901 (page 3)

Raymond Purchases Ulupalakua Ranch

The syndicate which recently bought the Kahikinui Ranch on Maui has through Dr. J. H. Raymond purchased the Ulupalakua ranch, formerly the property of the

Makee family and later on of the Dowsetts. If the ranches are well managed there is no reason why the investment should not prove a bonanza. The purchase price is $52,500, although James Dowsett paid $84,000 for the place some years ago.

The Evening Bulletin
December 28, 1901

They Want A Road

Editor Evening Bulletin:—I see by the Evening Bulletin that Mr. Boyd has been here and gone. We are disappointed. We did expect the promise of a road if nothing more. We live a little below the Ulupalakua ranch and there are a dozen or more families of small farmers near us that get to and from their places as best they can. The road from Mākena to Kula is up through the pasture land where there are very few people. As it is now it is of little use to the majority of the people. The government sells us land and taxes us but gives us no road. I have been acquainted more or less with Honualla [Honuaula] fifty-seven years and there has never been a road here to accommodate the people. Except for the school at Ulupalakua we are about as Captain Cook left us.

William S. Wilcox.
Ulupalakua, Maui, Dec. 24, 1901.

The Raymond interests had entered into a trustee agreement, but terminated the agreement on August 1st, 1910 when the Raymond interests were assigned to Hawaiian Trust Company, Limited, as trustees of mortgage (Bureau of Conveyances Liber 333, pp. 276-303). The instrument of transaction is important as it documents chain of title for land holdings of the ranch while also providing details on the extent of livestock controlled by the ranch at the time. Excerpts from the instrument are cited here:

August 1, 1910
James H., and Phoebe K. Raymond; to Hawaiian Trust Co. Ltd., Trustee
Description of Holdings of "Raymond Ranch:"

This Indenture, made and entered into this first day of August, 1910, by and between James H. Raymond and Phoebe K. Raymond, his wife, both of the City and County of Honolulu, Territory of Hawaii, who, among other things, are engaged in conducting and carrying on what is commonly known as and called the "Raymond Ranch," situate on the Island of Maui, said Territory of Hawaii, hereinafter throughout this instrument designated "Grantors;" and the Hawaiian Trust Company, Limited, an Hawaiian corporation, hereinafter throughout this instrument designated as "Trustee;" Witnesseth: that

Whereas, there is at the present time outstanding against said Raymond Ranch properties a bonded indebtedness amounting in the aggregate to the sum of One Hundred and Twenty Thousand Dollars, secured by Deed of Trust to the Henry Waterhouse Trust Company, Limited, as trustee; and

Whereas, there is also, at the present time unsecured indebtedness against said grantors amounting in the aggregate to approximately Fifteen Thousand Dollars; and

Whereas, with a view to providing means to refund and satisfy said existing indebtedness forthwith and simultaneously with the execution of these presents, said grantors propose to make and execute their joint and several bonds amounting in the aggregate to the sum of One Hundred and Thirty-five Thousand Dollars, thereby becoming indebted to such persons as may, from time to time become holders thereof; and, in order to secure the payment thereof, do join in executing and delivering to the Hawaiian Trust Company, Limited, as trustee for said bondholders this deed of trust or first mortgage upon all of the properties now and hereafter comprising said Raymond Ranch.

Now, therefore, in order to properly effectuate the premises, and carry out the full intent of all parties hereto in securing the bonded indebtedness last hereinabove referred to, said James H. Raymond and Phoebe K. Raymond, (grantors aforesaid) …in consideration of One Dollar to them in hand paid by said Hawaiian Trust Company, Limited, receipt whereof is acknowledged, do hereby grant, bargain, sell and convey unto said Hawaiian Trust Company, Limited, as Trustee aforesaid, for the uses and purposes in this instrument specified, all of the properties, real, personal or mixed, connected or having to do with or constituting a part of what is commonly known as and called the “Raymond Ranch,” situate on the Island of Maui, in the Territory of Hawaii, as well as all properties, real and personal, which from time to time hereafter during the life of this Deed of Trust, may be acquired by purchase or otherwise by or for said grantors, or either of them, and become part and parcel of or in anywise used in connection with said Raymond Ranch properties; portions of said Ranch properties being more particularly described by metes and bounds, and otherwise, as follows:

First: The estate situated on the Island of Maui, Territory of Hawaii, known as the “Rose Ranch,” being the same premises described in a deed from Parker M. Makee and others to James I. Dowsett, dated March 3, A.D. 1886, of record in Liber 101, page 200, and in a deed from the James I. Dowsett Estate, Limited, to the Dowsett Company, Limited, dated January 10, A.D. 1900, recorded in Liber 203, page 282, and in deed from J.M. Monsarrat, guardian of the estate of

Genevieve Dowsett and Marion C. Dowsett, minors, to The Dowsett Company, Limited, dated the 23rd day of March, A.D. 1900, recorded in Liber 201, page 469, and in a deed from David Dayton, guardian of the estate of Madeline C.K. Dowsett and Annie C.K. Dowsett, minors, to The Dowsett Company, Limited, dated the 23rd day of March, A.D. 1900, recorded in Liber 203, page 491, and having an area, according to the survey and estimate of M.D. Monsarrat, Surveyor, of fifteen thousand eight hundred seventy-six and 65/100 (15,876.65) acres, and being the same premises conveyed in a deed from The Dowsett Company, Limited, to said Phoebe K. Raymond, by deed dated August 13, A.D. 1901, recorded in Liber 225, page 218.

Second: The estate situated on said Island of Maui, Territory of Hawaii, known as the "Kahikinui Ranch," comprising the following pieces or parcels of land…

[Describes metes and bounds of Apana 1, an area containing 8.09 acres; Apana 2, containing 5.61 acres, "excepting the Kuleana of Natives;" as described in Royal Patent No. 2988 to Kuhina; and other lands in Kahikinui.]

Third: A certain indenture of Lease from Edward S. Boyd, Commissioner of Public Lands of the Territory of Hawaii, to James H. Raymond, numbered 541, and dated September 20, A.D. 1902, recorded in Liber 240, page 160, for the term of twenty-one (21) years from that date, of the land known as "Kahikinui," on the Island of Maui, as herein described, containing an area of twenty-five thousand (25,000) acres more or less. Intending to assign, transfer and set over the said lease and the premises thereby demised to the Hawaiian Trust Company, Limited, permission having been obtained therefore in accordance with said Lease.

Fourth: A certain license from Edward S. Boyd, Commissioner of Public Lands, to Henry Waterhouse and Company, trustees for James H. Raymond and Phoebe K. Raymond, dated August 12, A.D. 1901, and numbered 533, of a flowing spring known as "Polipoli" and the waters thereof, situated on the lands known as "Kamaole," and all the rights, privileges, and authority granted by said license, and which said license has been duly assigned to said grantors, and permission to assign the same to the grantors and to the trustee hereof having been granted in accordance with said license.

Also a further license granted by said Edward S. Boyd to the Henry Waterhouse and Company, trustees of said James H. Raymond and Phoebe K. Raymond, on the 20th day of September, A.D. 1902, of the Government Reservation of Kamaole for the term of twenty (20) years, and duly assigned to the said grantors; said license being for the purposes of entering upon all that tract of land known as the "Government Reservation of Kamaole," being the upper or *mauka* portion of the

land of Kamaole, Kula, Island of Maui, in said Territory, containing an approximate area of six hundred forty (640) acres, and bounded *mauka* by a line running along the top of the mountain ridge from Paeahu to Keokea; *makai* by land described in Grant 388 to Joseph White, Grant 545 Ap. 4 to Kekipi, and Grant 517 Ap. 1 to J. Sniffen; and lying between the lands of Paeahu and Keokea, and to explore, examine and survey the same or any part thereof below a contour line crossing said land at a level one hundred (100) feet below the Polipoli Spring on said land, for the purpose of developing water, conveying out and utilizing the same upon said land or elsewhere, and for these purposes to construct and maintain for the term of this license, reservoirs, dams, ditches, flumes, tunnels, pipe-lines and any and all other works, structures or appliances necessary or convenient for the accomplishment or effectuating of said purposes. Permission to assign which license has been granted in writing by the Commissioner of Public Lands of said Territory…

[Describes lands at Kanaio.]

Sixth: Those certain pieces or parcels of land containing in all an area of about fifty (50) acres, and being all the premises conveyed by the deed of W.H. Cornwell to Henry Waterhouse and Arthur B. Wood, trustees for James H. Raymond and Phoebe K. Raymond by deed dated September 21, A.D. 1903, recorded in Liber 254, page 472.

Seventh: All water rights and rights to water of every nature, character and description arising out of, appurtenant or relating to or connected with any of the lands mentioned or referred to in this deed of trust, and any other water rights or rights to water now or hereafter held or possessed or enjoyed by the said grantors, or either of them, in or on said Island of Maui.

Eighth: Any and all renewals of present leasehold interests in lands of said Raymond Ranch, or any new leases or leasehold interests in lands within the confines of or adjoining said Raymond Ranch property.

Ninth: And also the following lands situate on said Island of Maui and described in the following deeds, to wit:

(a) Deed from Kali Naluai (widow dated August 31st, 1908, recorded in Liber 305 Page 420 et seq., and conveying an undivided 5/12 of land at Kaeo, Honuaula, Maui, being portion of Grant 835 to Mahoe on the south side of wall known as “Torbert’s Wall;”

(b) Deed from John Sniffen dated September 8th, 1909, and recorded in said Registry in Liber 317 Page 365 et seq., and conveying a 1/12 interest in

land at Kaeo, Honuaula, being portion of Grant 835 to Mahoe on the south side of wall known as “Torbert’s Wall;”

(c) Deed from Julia I. Oneha and husband dated August 24, 1909, and recorded in said Registry in Liber 317 Page 318 et seq., and conveying land at Kalihi, Honuaula, as in Grant 1474 to Kaaua, and containing an area of 17.89 acres more or less.

(d) Deed from Geo. Sniffen dated September 13, 1909, and recorded in said Registry in Liber 317, Page 389 et seq., and conveying an undivided 1/12 interest in land at Kaeo, Honuaula, being portion of Grant 835 to Mahoe on south side of the wall known as Torbert’s Wall…”

…Eleventh: All the cattle, horses, wagons, harness, tools, pipe lines, troughs, reservoirs, tanks, wire fences, corrals, machinery and buildings, and all other articles, real, personal and mixed, upon or used in connection with and being a part of the said Raymond Ranch, including hereby, *inter alia*, also all personal property being or used upon or constituting a part of said Rose Ranch and said Kahikinui Ranch, of every name, character or description:

(1) And including without prejudice to the generality of the foregoing description two stallions and about sixty work horses, of all ages and twenty mules;

(2) And about 4,500 cattle, included in which are 25 Hereford bulls, 10 Angus bulls and 5 Short Horn bulls;

(3) And also all the increase from time to time of said livestock;

Together with the registered brand of said Raymond Ranch, including the brands of said Kahikinui and Rose Ranches namely; the Horseshoe brand, the W brand and the R R brand... [Also describing conditions and parties to agreement.] (Liber 333, pp. 276-302)

Honolulu Star-Bulletin
November 20, 1922 (page 1)

Dr. Raymond To Sell His Ranch To The Baldwins
Option Calls for Payment of $625,000 in Cash and Deal Will Soon Be Closed (Special Star-Bulletin Radio)

Wailuku, Maui, Nov. 20. Dr. James H. Raymond today confirmed a report, sent here by The Star-Bulletin for investigation, that he is preparing to sell his extensive ranch holdings on Maui.

The Baldwin interests have taken an option until January 1 for the purchase of Raymond's big cattle ranch, the price to be $625,000 in cash. It is certain that the deal will be closed.

The property involved is Raymond's Ulupalakua ranch, which includes the Rose ranch, formerly held by the Makee Sugar Co., and Auwahi, about 24,000 acres in all, purchased 20 years ago, and Kahikinui, comprising 12,655 acres of leased land on which renewals were obtained a few months ago.

There are about 5000 head of cattle on the ranch and much of the land is valuable for agricultural purposes, a considerable part of it now being under cultivation.

Frank F. Baldwin said that he and his associates are merely going from one land holding to another and that, having sold the island of Lanai to the Hawaiian Pineapple Co. for $1,100,000,00, they are now purchasing the Raymond property.

The Maui News
November 21, 1922

Frank Baldwin Is Prospective Buyer of Tract
Splendid Property Extends Up Slopes of Western And Southwestern Sides of Haleakala, 45,000 Acres

Frank F. Baldwin has secured an option for the purchase of the Raymond Ranch properties and a real estate deal second only in magnitude to the recent sale of Lanai may be expected to be completed between now and the first of the year. Confirmation of a report to that effect has been secured both from Mr. Baldwin and from Dr. J.H. Raymond. The purchase price is $625,000.

Great Area Included
Raymond Ranch, the property covered by the option is a vast and beautifully located, rich and fertile estate which is situated on the southwesterly and westerly slopes of Haleakala. The fee simple lands in the tract consist of Ulupalakua, Rose Ranch, purchased more than 20 years ago, lands formerly of the Makee Sugar Company and Auwahi, amounting in all to 24,719 acres. In addition to such fee simple lands there are included in the deal nearly 20,000 acres of leased lands. The largest tract of such lands is Kahikinui and comprises 12,655 acres. A renewal of the lease was secured a few months ago. Another large lease land area in Kanaio which contains some 7200 acres and on which the lease will not expire until in 1927.

In addition to the lands there will be included in the sale the livestock, it being estimated there are 5000 head of cattle on the range. They are mostly white faced Herefords but there are some short horns and Polled'angus.

Varied Topography and Soil

There is no better grazing land on Maui or in the Islands than some of that embraced in the territory under option and much of the land is available for agricultural purposes. Mr. Raymond has raised red beans, corn, fodder and other crops extensively but has not used nearly all of the area that would be available for such purposes if desired. There are ample sources of water supply and important water rights that will go with the property.

Frank F. Baldwin in confirming the report that he had secured an option on the property said that the purchase of the property would be simply going from one land investment into another as he and Harry A. Baldwin had sold Lanai and Hawaiian Pineapple Company had announced they would exercise their option for its purchase. In the Raymond Ranch deal, however, Harry Baldwin does not enter. It is purchased by Frank Baldwin individually.

Dr. Raymond Retiring

Dr. Raymond said that he had not determined upon what he will do if the sale be completed. Harvey Raymond is leaving soon to accept a position isin a large real estate concern on the mainland. He has been contemplating retiring from active participation in the ranch affairs for some time past and had contemplated incorporating and the formation of a company to handle the property and its interests. There have been numerous approaches made by various persons in the past looking to a possible purchase but in no instance was an option given.

Negitations (sic) [Negotiations] Succeed

Negotiations for the property have been in progress for several weeks past and have been conducted through the Hawaiian Trust Company in Honolulu. Dr. Raymond said yesterday that the payment for the option was made only three days ago. Prior to that time there had been rumors on the subject but he would not confirm such rumors until the option had actually been given and taken. He added that Mr. Baldwin has until January 1, to exercise his option.

Owing to the fact that nearly half of the premises is leasehold land it is impracticable to figure any price per acre in the transaction. It is agreed however, that the property is one of the most desirable that could be found anywhere in Hawaii nei.

Honolulu Star-Bulletin
July 26, 1924

(B.J. Bridgeford Reports on Experimental Pineapple Cultivation at Ulupalakua Ranch)

…He also reported that 50 acres planted in pineapples on Ulupalakua ranch for experimental purposes, to find out if they would grow, have produced pineapples as fine as those to be found anywhere.

"Conditions exactly opposite to those found at Haiku prevail at Ulupalakua and there was much doubt expressed as to how well pineapples would do there," Bridgeford said.

"The experimental field is at an elevation of about 2000 feet and the country is habitually dry though it participated in rains of last week which were of much benefit there, too." The crop will be hauled to one of the canneries on Maui.

In 1929, L.A. Henke (1929) of the University of Hawai'i published an account of livestock in Hawai'i, in which he included the following summary of history at Ulupalakua Ranch:

Ulupalakua Ranch, extending along the sea for twenty-five miles and up the southwestern slope of Haleakala on Maui, has an area of approximately 63,000 acres, 28,000 of which are held in fee simple and the balance is government leased lands. While the ranch extends to the crater of Haleakala, the elevation of which is 10,000 feet, no good grazing areas are found above 6,000 feet elevation.

Ulupalakua formerly had quite a problem getting enough water and large cisterns were built. Now much of the water is secure through the Kula pipe line.

The ranch carries about 5,000 Hereford cattle at the present time, and some wild cattle are still found on different parts of the ranch. Some 1,500 head, averaging three years of age and dressing out at 500 pounds, are marketed annually; about 500 are slaughtered on Maui for local consumption and the balance are shipped to Honolulu.

The ranch headquarters are beautifully located in the midst of giant trees largely planted about 1865 by Captain John [James] Makee, then owner of the place.

This ranch has some of the finest grazing lands in the Islands. In addition to the imported grasses, cactus (*Opuntia* spp.) and *Koahaole* (*Leucaena glauca*) are widely distributed over the pastures.

> Talbot [Torbert] and Wilcox about 1848 started a sugar plantation on part of these lands and this was purchased in 1853 by Captain James Makee, who continued it as a sugar plantation for a time, but sugar growing apparently was not entirely successful in this region under conditions then prevailing, and when J.I. Dowsett acquired these lands in the early eighties, he converted the place into a cattle ranch. According to some reports Shorthorn cattle were found on the ranch at this time. Mr. Dowsett took some Angus cattle there in 1885 but Angus blood never played a big role at Ulupalakua.
>
> Dr. Raymond, a son-in-law of Mr. Dowsett, acquired the ranch in 1900 and continued as owner till 1923, and it is probable that Hereford cattle—the present breed—were first introduced by him. J.H. MacKenzie was manager for Dr. Raymond from 1906-1907, at which time the ranch carried about 4,000 cattle, mostly Shorthorns. He was followed by Angus McPhee, who supervised operation for three years. After this A.C. Dowsett was manager for a time. Mr. McPhee returned as manager in 1921 and in 1923 the ranch was purchased by F.F. Baldwin, the present owner. Mr. McPhee continued as manager of the ranch till 1925, when Edward Baldwin took charge. (p. 60)

In 1963, ranchers C. Padee Erdman, Jr. and Mr. and Mrs. James Waggoner Corberely, Jr. purchased holdings at Ulupalakua Ranch. The details of these negotiations were provided in the *Honolulu Star-Bulletin* on May 20, 1963 (pp. 1 & 1-A)*:*

> **Mainland Group to Buy Maui Ranch.**
> **Negotiations for the sale on July 1 of all of the stock of Ulupalakua Ranch on Maui have been completed, J. Scott B. Pratt III, president of Hawaiian Trust Company, announced today.**
>
> The price was not disclosed.
>
> The Hawaiian Trust Company are co-executors of the estate of the late Frank F. Baldwin.
>
> All of the stock of Ulupalakua Ranch is being sold to settle the estate.
>
> The buyers are C. Pardee Erdman, Jr., rancher of Sheridan, Wyoming, and Reno, Nevada, and Mr. and Mrs. C. James Corberley, Jr., of Los Angeles, Texas and Mexico.
>
> Corberley is in the oil tool manufacturing business.
>
> Mrs. Corberley, formerly Jean Waggoner, is one of the fourth generation of the

famous W.T. Waggoner family which owns one of the largest cattle and horse outfits in the Southwest together with extensive oil holdings located on the ranches.

The Corberleys have rented the former Kaiser residence at 4607 Kahala Avenue in Honolulu, and with their two sons are spending the summer here.

Ulupalakua Ranch is located on the slopes of Haleakala and consists of two main areas—the headquarters unit running from the beach areas around Mākena to the 7,000-foot slope above Kula and the Kipahulu unit on the southeast slope of the mountain between Hana and Kaupo.

60,000 Acres
One of the largest ranches in Hawaii, the widespread operation covers about 60,000 acres of which over 27,000 are fee, the balance leased.

Some 9,000 head of cattle and 150 horses are included in the transaction.

The new owners will take occupancy July 1 when Erdman will move to the ranch and supervise all operations.

James Armitage has been retained as general manager. He was formerly associated with C. Brewer and Company and Parker Ranch.

The new owners plan to continue operating the ranch as it is now being run.

The buyers were represented by Hamilton McCaughey, ranch investment counselor from Reno. McCaughey is a former Honolulu resident.

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4.0 Cultural Resources

The following research and analyses appropriately study the history and cultural resources of the project area, focusing on the project area and the surrounding environment.

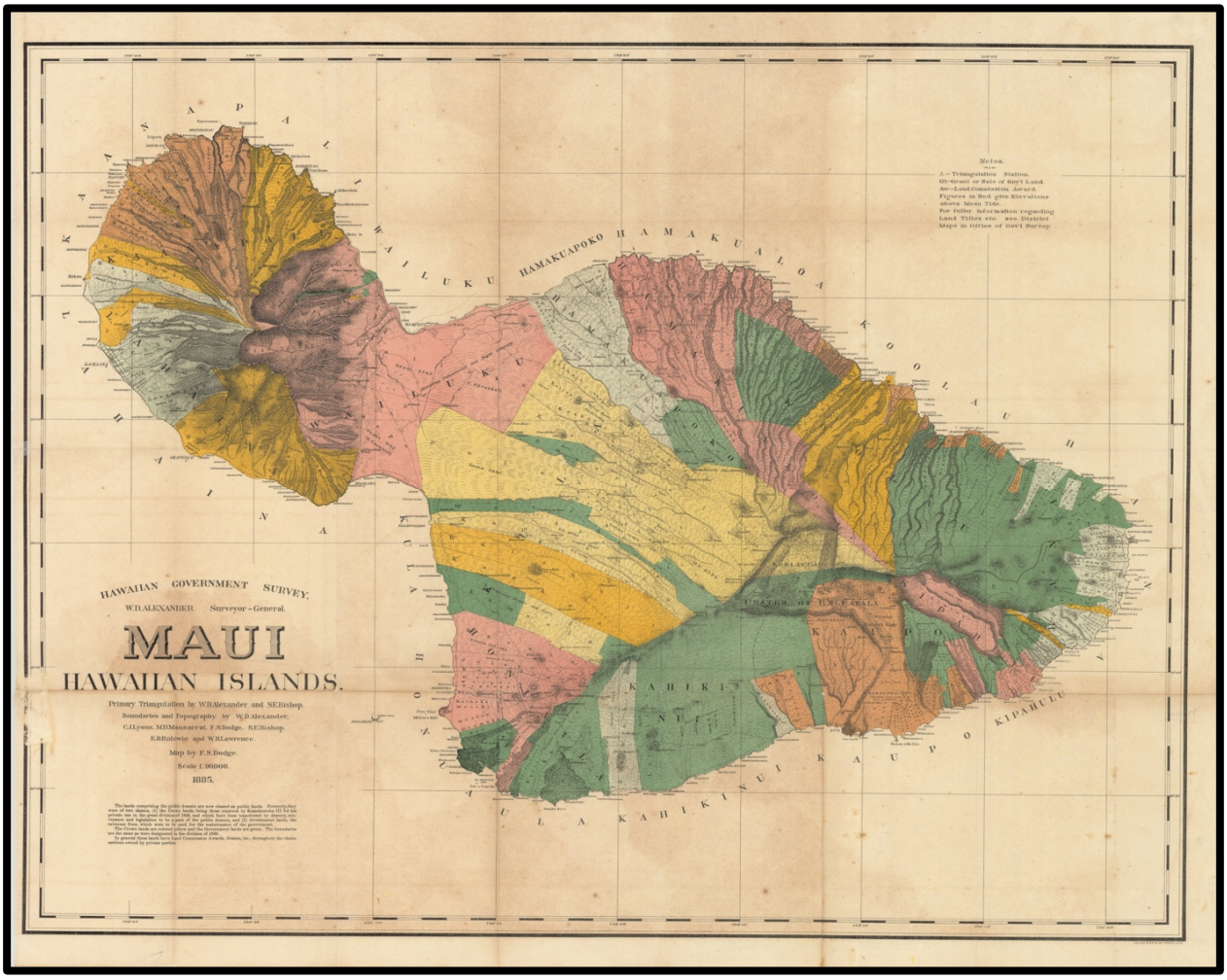

Figure 7. Map of Maui by W.D. Alexander and F.S. Dodge (1885)

4.1 Historic Properties and Cultural Sites

The cultural landscape of Ka‘eo and Mākena was marked by numerous religious and ceremonial sites that reflected the spiritual dimensions of traditional Hawaiian life. According to Maly and Maly’s (2005) research, several heiau were documented in the region, including both large complexes and smaller shrines dedicated to specific purposes such as agricultural fertility, fishing success, or family worship (p. 12).

One of the most significant religious sites in the area was Keawalaʻi Heiau, which continues to stand today. Archaeological descriptions of the heiau indicate a substantial stone platform with multiple architectural features including terraces, enclosures, and possible oracle towers. The size and complexity of Keawalaʻi Heiau suggest it served important religious functions for the broader community rather than just a single family group, potentially hosting seasonal ceremonies related to the agricultural cycle or important political events (Maly & Maly, 2005, p. 14).

Several smaller heiau and shrines were dispersed throughout Kaʻeo that served more specialized purposes, including koʻa positioned at strategic points along the coastline where offerings were made to ensure successful fishing expeditions and continued abundance of marine resources. Agricultural heiau were positioned within cultivation areas to promote crop fertility and protect against pests or adverse weather conditions. Kuahu (family shrines) associated with specific ʻohana provided spaces for household-level religious observances and ancestor veneration (Maly & Maly, 2005, p. 15).

Traditional religious practitioners in Kaʻeo included kahuna of various specialized orders who conducted ceremonies, maintained religious knowledge, and served as intermediaries between the community and the realm of the gods (akua) and ancestors (ʻaumākua). Certain families within Kaʻeo maintained specialized religious knowledge and responsibilities that were passed down through generations. These practitioners played crucial roles in community life, guiding decisions about resource use, healing the sick, and maintaining proper relationships with the spiritual world (Maly & Maly, 2005, p. 16).

Other religious sites included various ahu (stone cairns) marking significant locations or boundaries within the ahupuaʻa. These simpler structures often marked places of spiritual significance, served as boundary indicators, or commemorated important events or individuals. Pohaku o Kāne (stones dedicated to the god Kāne) were positioned near freshwater sources, reflecting the association between this deity and life-giving water (Maly & Maly, 2005, p. 17).

There are also numerous burial areas throughout Kaʻeo and neighboring ahupuaʻa, reflecting traditional Hawaiian burial practices. These included interments in sand dunes, within lava tube caves, and in stone-lined burial cists. The presence of these burials underscores the long history of human habitation in the area and the cultural importance of maintaining connections to ancestral grounds (Maly & Maly, 2005, p. 15).

Burial practices in traditional Hawaiian culture connected the living community to their ancestors and to the land itself. Burial locations were often kept as protected knowledge within families, reflecting the sacred nature of these sites and the desire to protect ancestral remains from disturbance. Some burial areas contained multiple interments,

suggesting use over generations, while others appeared to be individual burials. Grave goods documented in archaeological investigations included various items of material culture that accompanied the deceased into the afterlife, reflecting beliefs about the continued existence of the spirit after death (Maly & Maly, 2005, p. 18).

Natural features within the Kaʻeo landscape also held religious and cultural significance. Certain rock formations, caves, springs, and other distinctive landscape elements were recognized as manifestations of deities or as places where the veil between the human and spiritual worlds was particularly thin. These wahi pana were incorporated into local moʻolelo and religious practices, creating a landscape imbued with cultural and spiritual meaning (Maly & Maly, 2005, p. 19).

Traditional ceremonies and religious observances in Kaʻeo followed the rhythms of the Hawaiian lunar calendar, with specific rituals associated with different phases of the moon and seasons of the year. The Makahiki festival, a months-long period honoring the god Lono and celebrating harvest abundance, likely included community-wide observances in Kaʻeo as it did throughout the Hawaiian Islands. Other ceremonial cycles related to fishing, agriculture, and warfare would have punctuated the annual calendar, creating a structured religious life interwoven with subsistence activities and community events (Maly & Maly, 2005, 20).

ASM Affiliates have completed a literature and surface survey and will be overseeing the HRS Chapter 6E compliance process.

4.2 Natural Resources with Cultural Significance

To employ the Hawaiian landscape perspective and emphasize the symbiosis of natural and cultural resources, Honua Consulting uses the term “biocultural” to refer to natural and cultural resources, with additional sub-classifications by attributes.

Further, a brief discussion of environmental zones and traditional Hawaiian land management practices is necessary to understand the tangible and intangible aspects of the Hawaiian landscape. Additionally, it is important to specify again that in the Hawaiian landscape, all natural and cultural resources are interrelated and culturally significant. Natural unaltered landscape features such as rocky outcrops, cinder cones, intermittent streams, or an open plain can carry as much significance as a planted grove of wauke (*Broussonetia papyrifera*) or a boulder-lined ʻauwai (canal).

Maly (2001) presents a narrative of traditional Hawaiian land management strategies and the different environmental zones recorded in *Ka Hoku o Hawaii* (September 21, 1916):

Hawaiian customs and practices demonstrate the belief that all portions of the land and environment are related, like members of an extended family, each environmental zone was named, and their individual attributes were known. Acknowledging the relationship of one environmental zone (wao) to another, is rooted in traditional land management practices and values. Just as place names tell us that areas are of cultural importance, the occurrence of a Hawaiian nomenclature for environmental zones also tells us that there was an intimate relationship between Hawaiians and their environment.

The native tradition of Ka-Miki provides readers with a detailed account of Hawaiian land divisions and environmental zones. While competing in a riddling contest at the court of the chief, Palikū-a-Kīkoʻokoʻo, the hero, Ka-Miki sparred with Pīnaʻau, the foremost riddler of the district of Hilo Palikū (northern Hilo). The riddles covered topics describing regions from the mountain tips to the depths of the ocean, and descriptions of kalo (taro growth), the ala loa (trail systems), and nā mea lawaiʻa (fishing practices). As the contest unfolded, it was seen that each of the competitors were well matched. In one of the riddles, Ka-Miki described the various regions of the island of Hawaii, extending from the mountain to the sea. Ka-Miki then told his opponent, that if he could rise to the challenge of answering the riddle, his knowledge could be compared to one who has ascended to the summit of the "mauna o Paliahu" (mountain of Poliʻahu, or Mauna Kea) (in *Ka Hoku o Hawaii*, September 21, 1916).

Through one of the riddles [the] reader learn[s] about the traditional wao or regions of land, districts, and land divisions of the administrators who kept peace upon the land. The environmental zones include:

1 – Ke kuahiwi; 2 – Ke kualono; 3 – Ke kaumauna; 4 – Ke ku(a)hea; 5 – Ke kaolo; 6 – Ka wao; 7 – Ka wau maʻu kele; 8 – Ka wao kele; 9 – Ka wao akua; 10 – Ka wao lāʻau; 11 – Ka wao kānaka; 12 – Ka ʻamaʻu; 13 – Ka ʻāpaʻa; 14 – Ka paheʻe; 15 – Ke kula; 16 – Ka ʻilima; 17 – Ka puʻeone; 18 – Ka poʻina nalu; 19 – Ke kai kohola; 20 – Ke kai ʻele; 21 – Ke kai uli; 22 – Ke kai pualena; 23 – Kai Pōpolohua-a-Kāne-i-Tahiti.

1 – The mountain; 2 – The region near the mountain top; 3 – The mountain top; 4 – The misty ridge; 5 – The trail ways; 6 – The inland regions; 7 and 8 – The rain belt regions; 9 – The distant area inhabited by gods; 10 – The forested region; 11 – The region of people below; 12 – The place of ʻamaʻu (fern upland agricultural zone); 13 – The arid plains; 14 – The place of wet land planting; 15 – The plain or open country; 16 – The place of ʻilima growth (a seaward, and generally arid section of the kula; 17 – The dunes; 18 – The place covered by waves (shoreline);

> 19 – The shallow sea (shoreline reef flats); 20 – The dark sea; 21 – The deep blue-green sea; 22 – The yellow (sun-reflecting sea on the horizon); and 23 – The deep purplish black sea of Kāne at Tahiti. (p. 3)

This section discusses the natural resources within the project area, specifically those natural resources that may have cultural significance or use. These natural resources were identified through the biological assessment prepared for the project and through primary research into historic resources.

4.2.1 Flora

The botanical survey conducted in Makena between September and December 2024 provides a detailed assessment of an area spanning over 1,000 acres slated for future development. The survey, led by Rick Barboza, documents a landscape severely impacted by invasive species and ungulate pressure yet still retains important native Hawaiian plant communities and wildlife that merit conservation attention.

The survey findings paint a picture of a landscape dominated by invasive species, with native flora struggling to survive amid multiple environmental pressures. The primary vegetation is characterized by introduced trees, notably kīawe (*Prosopis pallida*) and koa haole (*Leucaena leucocephala*), which have outcompeted native species. The understory is similarly overwhelmed by non-native grasses and shrubs, creating a dense, dry fuel load that significantly increases wildfire risk (Barboza, 2025).

The survey documents an impressive diversity of species, with hundreds of plants, birds, mammals, reptiles, and insects cataloged. The species list includes a total 170 plant species, with the vast majority (approximately 81%) being alien species introduced after European contact (Barboza, 2025). The endemic (found only in Hawai‘i), indigenous, and Polynesian-introduced species total 32 of the 170 flora documented, illustrating a pattern of dominance by non-native species that is apparent across the Hawaiian Islands.

Though compromised, the native flora documented in the survey provides valuable insight into the original ecological character of the area. The most significant native tree is wiliwili (*Erythrina sandwicensis*), an endemic dry forest species that remains present but is struggling to regenerate. Wiliwili, once a dominant feature of Hawaiian lowland dry forests, faces multiple threats in the survey area. Though mature trees produce abundant seeds, virtually no seedling recruitment was observed throughout the entire site. The survey documented only a single wiliwili seedling in the entire study area. Additionally, hundreds of mature wiliwili trees were observed to be dead or in decline due to extreme drought conditions exacerbated by competition from invasive grasses, as well as physical damage from Axis deer (*Axis axis*) antlers and trampling.

Due to the lightweight nature of wiliwili, early Hawaiians frequently used the wood for the canoe ama (float), fishing gear, and surfboards (Hiroa, 1957; Abbott, 1992). Wiliwili surfboards were frequently reserved for aliʻi because large and suitable trees were difficult to locate (Krauss, 1993). Wiliwili flowers were used medicinally to treat venereal diseases, while both seeds and flowers were used in lei making (Kaʻaikamanu & Akina, 1972; McDonald & Weissich, 2003).

In addition to the endemic wiliwili, the indigenous ʻuhaloa (*Waltheria indica*), maʻo (*Abutilon incanum*), ʻilima (*Sida fallax*), and hala (*Pandanus tectorius*) were observed with relative frequency. Maiapilo (*Capparis sandwichiana*), an endemic coastal shrub, was present but in much lower numbers than would be expected in a healthy lowland dry forest ecosystem. The survey also documented single occurrences of some particularly rare native species, including the endemic puakala (prickly poppy, *Argemone glauca*), one patch of indigenous ʻalaʻala wai nui (*Peperomia blanda*), and one small area of indigenous ʻilieʻe (*Plumbago zeylanica*) (Barboza, 2025).

ʻUhaloa is primarily a medicinal plant; leaves, stems and roots were pounded and strained to be used as a gargle for sore throats, which is a practice that continues today (Abbott, 1992). ʻIlima is widely used to string lei, which are highly valued and prized because the flowers are very delicate and last only one day once picked. It takes roughly 500 flowers to produce a single lei in the kuʻi (sewn, joined) style (McDonald & Weissich, 2003). “Maʻo” translates to “green,” so it is apt that the leaves of this species were traditionally used to make green dye for kapa (Hiroa, 1957). Today, maʻo flowers can be used in lei making, as they last a few days after picking (McDonald & Weissich, 2003). Hala wood was used extensively by early Hawaiians for construction of homes, canoe rollers, and bowls, while the leaves (lau hala) were prepared for weaving mats, baskets, and thatch (Krauss, 1993).

Maiapilo was once used medicinally to treat fractures and broken bones; the whole plant was pounded and applied to body joints, while the milky sap was applied to externally treat boils (Neal, 1965). ʻAlaʻala wai nui, puakala and ʻilieʻe were all used medicinally by early Hawaiians for a range of issues (e.g., ulcers, asthma, aches, warts and sores), despite the latter two species being toxic (Kraus, 1993; Neal, 1965). Additionally, ʻalaʻala wai nui and ʻilieʻe were used to create gray/green and navy blue/black dyes, respectively, with the latter being used for tattoo dye in addition to kapa dye (Neal, 1965; Handy et al., 1972; Krauss, 1993).

Additional indigenous species include: ʻākulikuli (*Sesuvium portulacastrum*), a succulent groundcover found in coastal areas; kīpūkai (*Heliotropium curassavicum*), a perennial herb that thrives in salty soils; koali kuahulu (*Merremia aegyptia*), a native morning glory; naio (*Myoporum sandwicense*), a sprawling shrub whose branches were traditionally

used for rafters and thatching poles (Krauss, 1993); alena (*Boerhavia repens*), a perennial herb whose roots were used medicinally to treat musculoskeletal pain and edema (Neal, 1965); and pōpolo (*Solanum americanum*), a native nightshade whose flowers, berries and leaves were used medicinally to treat thrush and various aches and pains, while the berries were used to create a blackish purple dye (Krauss, 1993; Abbott, 1992).

The survey also identified native ferns, including kupukupu (*Nephrolepis cordifolia*), moa (*Psilotum nudum*), and the endemic kumuniu (*Doryopteris decipiens*). Kupukupu and moa fronds are fashioned into lei for the wrists, ankles, and head, both traditionally and in modern practice (McDonald & Weissich, 2003). In addition to adornment, moa was also used for recreation. Krauss (1993) describes a simple traditional game, moa nahele (cock fighting):

> Two children sat or stood facing one another, each holding a branched stem of moa. These they interlocked and then slowly pulled apart until the branches of one broke. The other child, without broken branches, was the winner and announced his victory by crowing like a rooster (moa). (p. 88)

Canoe plants—those brought by Polynesian settlers to Hawai‘i before Western contact—represent an important cultural resource. The survey identified several Polynesian introductions that remain in the area, including:

1. Kukui (*Aleurites moluccana*) – The candlenut tree, traditionally used for lighting, medicine, and dye.
2. Hau (*Hibiscus tiliaceus*) – A coastal tree with multiple uses including cordage and medicinal applications.
3. Milo (*Thespesia populnea*) – A valuable wood species used for bowls and other carved items.
4. Niu (*Cocos nucifera*) – The coconut palm, although its presence in the area is likely part of landscaping.
5. Kī or Tī leaf (*Cordyline fruticosa*) – A plant with diverse cultural uses from food wrapping to ceremonial purposes.
6. ‘Ape (*Alocasia macrorrhizos*) – A root crop grown for food in traditional Hawaiian agriculture.
7. Noni (*Morinda citrifolia*) – The Indian mulberry, traditionally used for medicine and dye.

Of the 32 endemic, indigenous, and Polynesian-introduced species identified in the biological survey, Barboza (2025) stressed the importance of establishing propagation programs for wiliwili, puakala, ‘ilima, ‘ilie‘e, maiapilo, and ‘ala‘ala wai nui to “safeguard these species, provide a genetic safety net for these populations and establish planting

stock for future restoration or landscaping efforts" (p. 7). The potential for ecological restoration is high in Mākena if restoration strategies are implemented that will mitigate the threats posed by the invasive flora and fauna found in the area.

4.2.2 Fauna

The fauna survey documented several native Hawaiian animal species of cultural and conservation importance. The ʻōpeʻapeʻa (Hawaiian hoary bat, *Lasiurus cinereus semotus*), Hawaiʻi's only endemic terrestrial mammal and an endangered species, was detected at two of the four sampling sites (Barboza, 2025). Additional mammals observed include Axis deer, domestic cattle (*Bos Taurus*), and mongoose (*Herpestes javanicus*). It is highly likely that introduced and invasive species such as house mice (*Mus musculus*), black rats (*Rattus rattus*), domesticated dogs (*Canis lupus familiaris*), feral cats (*Felis catus*), and pigs (*Sus scrofa*) utilize the project area.

Twenty-two bird species were observed during the survey, eightteen of which are non-native. Endemic birds include: the pueo (Hawaiian owl, *Asio flammeus*), a culturally significant species associated with ʻaumakua in Hawaiian tradition; the endangered aeʻo (Hawaiian stilt, *Himantopus mexicanus knudseni*), considered to be the kino lau of the god Kū in fisherman form; the endangered ʻalae keʻokeʻo (Hawaiian coot, *Fulica alai*), considered by early Hawaiians to be a deity; and the koloa maoli (Hawaiian duck, *Anas wyvilliana*), believed to have been the guide to Imaikalini, a fierce blind warrior king.

Indigenous migratory birds seen during the survey include: the kōlea (Pacific golden plover, *Pluvialis fulva*), the ʻaukuʻu (black-crowned night heron, *Nycticorax nycticorax hoactli*), the ʻūlili (wandering tattler, *Tringa incana*), and the ʻiwa (great frigate bird, *Fregata minor palmerstoni*). Beckwith (1970) describes the cultural significance of migratory birds in Hawaiian mythology:

> Birds are notably potential gods or spirit beings. In the machinery of romance migratory birds or those which nest in high cliffs are messengers for the high chiefs in the story. Thus plover (kolea), wandering tattler (ulili)… are sent by the divine chiefs… generally in pairs, to act as scouts or to carry messages from island to island. The plover, accompanied by the tattler, remains in Hawaii or flies on south from August until the following May or June, when it migrates to Alaska for nesting, leaving behind immature birds and cripples. (p. 90)

One such example of kōlea and ʻūlili acting as messengers is found in the moʻolelo of the Molokaʻi aliʻi Kapepeʻekauila, who dispatched these birds to reconnoiter before battle to recover his stolen wife, Hina, from her rescuer and son, Kana (Beckwith, 1970, p. 464). The ʻiwa also served as a guide for lost travelers in the Waiʻanae mountains at the behest

of Kaiona, the goddess of Ka‘ala (Pukui, 1983, p. 177). Aside from their cultural significance, these migratory birds are also protected under the Migratory Bird Treaty Act (MBTA), which prohibits the taking, possessing, importing, exporting, transporting, selling, purchasing, bartering, or any such offers of parts, nests, or eggs of any bird listed under the Act.

Two indigenous dragonflies referred to as pinao, the green darner (*Anax junius*) and globe skimmer (*Pantala flavenscens*), were frequently observed during the survey, but both species are widespread throughout the Hawaiian Islands and are not of conservational concern (Barboza, 2025).

4.2.3 Water Resources

Wai (fresh water) is of tremendous significance to Native Hawaiians. It is closely associated with a variety of Hawaiian gods. According to traditional accounts such as Westervelt (1915), “Ka-ne and Kanaloa were the water-finders, opening springs and pools over all the islands, each pool known now as Ka-Wai-a-ke-Akua (The water provided by a god)” (p. 38). Kāne is widely known to be closely associated with all forms of water, as outlined below in the mele “He Mele No Kane.”

There was no element more important or precious than water and there was no god more powerful than Kāne. Pua Kanahele (2011) recounts the oli “‘O Kāne, ‘o wai ia ali‘i o Hawai‘i?” and notes of the oli: “The chant begins with Kāne and focuses on this deity as the connective force of all the po‘e akua, or god family. All the entities mentioned in each paukū, or verse, are a manifestation of Kāne” (p. 24). The association between water and Kāne is logical considering certain interpretations of Hawaiian mythology identify Kāne as the most powerful of all the Hawaiian gods.

Further investigation into the relationship between Kāne and Pele would be appropriate and helpful. Some interpretations identify Kāne as Pele’s father (Westervelt, 1915). A full analysis of the different perspectives on Pele and Kāne would be helpful to refining an approach in developing community education programs for geothermal energy and culture. A brief analysis is provided below.

He Mele No Kane asks:

E ui aku ana au ia oe,	One question I ask of you:
Aia i hea ka Wai a Kane?	Where flows the water of Kane?
Aia i lalo, i ka honua, i ka Wai hu,	Deep in the ground, in the gushing spring,
I ka wai kau a Kane me Kanaloa-	In the ducts of Kane and Kanaloa,
He waipuna, he wai e inu,	A well spring of water, to quaff,
He wai e mana, he wai e ola,	A water of magic power- The water of life!

E ola no, ea! Life! O give us this life!

This mele and other moʻolelo are clear: Kāne is water. Fresh water as a resource is deeply valued by the Hawaiian people, both historically and at present. The only exceptions may be mist, known to be associated with Lilinoa, and snow, associated with Poliahu. There is an extensive body of traditional knowledge about the expeditions of Kāne and Kanaloa during which Kāne drove his ʻōʻō (digging stick) into the earth in search of water.

There is heightened sensitivity regarding water in South Maui. Contemporaneous protections around water as a "public trust resource" extend back to the Kingdom, where the concept of owning water contradicted Hawaiian cultural values and traditions. Under the monarchy, control of water was reserved for use by the people who lived on and worked the land. The use of surface water was strictly controlled through the kapu system to ensure that all land tenants enjoyed an abundant availability of water. Farming, particularly kalo, occurred regularly, especially in places with notably fertile lands like those found in the watersheds of East Maui. As early as 1839, the public use of water was codified by Kauikeaouli, Kamehameha III. His "Respecting Water for Irrigation" law stated:

> In all places which are watered by irrigation, those farms which have not formally received a division of water, shall, when this new regulation respecting lands is circulated, be supplied in accordance with this law, the design of which is to correct in full all those abuses which men have introduced. All those farms which were formally denied a division of water, shall receive their equal proportion. Those bounties which God has provided for the several places should be equally distributed, in order that there may be an equal distribution of happiness among all those who labor in those places" (Cited in *Reppun v. Board of Water Supply*, 656 P.2d 57, 1982).

This public right eventually found its way into existing law, where the Hawaii Water Code continues to recognize and protect traditional farming and mahi ʻai (farmers).

It is critical for this CIA to consider impacts to cultural practices, even when the practices may take place outside the project area if project activities within the project area have the potential to impact traditional practices and customs. It is appropriate to carefully consider the impact water usage may have on farmers and other practitioners within the watershed(s) from which the water for this project will be drawn. It should be noted that there are no users of groundwater downstream from the project, and the project's use of groundwater should not divert any resources from cultural and/or traditional use. Regardless, the project should remain mindful of its water consumption and ensure that its usage does not exceed the sustainable yield for any of the aquifers from which it draws water.

The Water Resource Report for the Mākena Mauka Project (June 2025) prepared by Akinaka & Associates presents a detailed analysis of the water supply requirements and sources for the Mākena Mauka Project. The water report outlines the water demand calculations, identifies water sources, and describes the proposed water system infrastructure needed to support these developments.

A key assumption in the report is that most of the development would be supplied by a "privately owned and operated water system," with the exception of the 109 workforce housing units in the M-2 and M-3 lots, which would be supplied by the Maui Department of Water Supply (MDWS) (p. 1). The water system design employs a dual-system approach: potable water produced through reverse osmosis (RO) treatment of slightly brackish groundwater, and irrigation water supplied by untreated brackish well water. This dual system is necessary because "a single system, with all of the irrigation water having to be RO treated, would require far more supply than the three wells could provide" (p. 10).

The water report identifies three primary wells that would supply both projects: ATC Makena 3 Well (State No. 3925-002, known as ATC-3), ATC Makena 7 Well (State No. 3925-003, known as ATC-7), and ATC-8 Well (State No. 3925-004). Each well was pump tested at over 350 gallons per minute (GPM), with ATC-3 and ATC-7 producing stable chlorides of 260 milligrams per liter (MG/L) and 368 MG/L, respectively. Each well will have a 350 GPM permanent pump. The water report notes that the "safe yield" calculation assumes that one well would be down for maintenance or repair, with the other two wells providing the water supply. Additionally, the Seibu 5 Well (State No. 3926-004) is identified as a potential backup connection for irrigation needs. This well has a 500 GPM pump.

For the Mākena Mauka Project (excluding workforce housing), the water report calculates a potable water requirement of 196,900 gallons per day (GPD) and an irrigation water requirement of 213,790 GPD.

The water system relies on RO treatment to convert the brackish well water into potable water. The water report assumes a 65% recovery rate in the RO treatment process, meaning that 35% of the water processed becomes concentrate (waste). Based on this recovery rate, the required maximum day well system supply for the Mākena Mauka project amounts to 775,070 GPD (equivalent to 538 GPM if pumped 24 hours a day). This is less than the safe yield from two of the three 350 GPM supply wells, which would be 700 GPM total.

A significant issue identified in the water report is the management of RO concentrate: "At full build out there would be a substantial volume of RO concentrate (about 190,000

GPD) for reuse or disposal. The State of Hawaii Department of Health's (DOH) current position is that the RO concentrate cannot be reused for irrigation" (p. 10). The report suggests that this concentrate is "likely to be too saline for irrigation in the two projects but may be appropriate for golf course irrigation" (p. 10). However, if the DOH position does not change, "a method of disposal would be required" and "a disposal well would ultimately need to be installed" (p. 10).

While the report focuses primarily on technical feasibility and infrastructure requirements, several aspects warrant consideration regarding potential impacts to freshwater resources. The three wells (ATC-3, ATC-7, and ATC-8) are drawing from a brackish aquifer with chloride levels ranging from 260-368 MG/L. This indicates that these wells are tapping into the transition zone between freshwater and saltwater in the basal aquifer. Excessive pumping from these wells could potentially increase saltwater intrusion into the freshwater lens, reduce the overall freshwater lens thickness, and affect the discharge of freshwater at the coastline. It is not believed that the water usage outlined in the report will affect other existing or potential water uses in the region, but the groundwater withdrawal of water may change groundwater discharge into the nearshore marine environment or the wetlands along the shoreline.

4.2.4 Rains

Akana & Gonzalez (2015) explain the significance of the wind and rain in Native Hawaiian culture:

> In the mind…of our Hawaiian kūpuna [(ancestors)], every being and every thing in the universe was born. Our kūpuna respected nature because we, as kānaka, are related to all that surrounds us – to plants and creatures, to rocks and sea, to sky and earth, and to natural phenomena, including rain and wind. This worldview is evident in a birth chant for Queen Emma, "Hānau ke aliʻi, hānau ka ua me ka makani" (The chiefess was born, the rain and wind, too, were born). Our kūpuna had an intimate relationship with the elements. They were keen observers of their environment, with all of its life-giving and life-taking forces. They had a nuanced understanding of the rains of their home. They knew that one place could have several different rains, and that each rain was distinguishable from another. They knew when a particular rain would fall, its color, duration, intensity, the path it would take, the sound it made on the trees, the scent it carried, and the effect it had on people. (p. xv).

To the Native Hawaiians, no two rains are ever the same. Rain can be distinguished based on its intensity, the way it falls, and its duration, among other things. Three rains are identified for the larger Honuaʻula region: Kēhau, Lanipaʻina, and Nāulu.

Kēhau is defined as a “dew, mist, dewdrop” and is frequently found on the Islands (Pukui & Elbert, 1986). Lanipa‘ina is a “sky crackling rain” specifically associated with ‘Ulupalakua: “Ka ua Lanipaina o Ulupalakua” (Inciong, 2003, p. 231). Nāulu is a sudden shower that is associated with places throughout the Hawaiian Islands; Nāūlu is also the name of a shower cloud and wind. In Hawaiian epistemology, sudden showers are associated with the akua Lono, whose domain is that of agriculture.

4.2.5 Winds

Hawaiian wind names hold significant cultural and practical importance in the Hawaiian Islands. Wind names in Hawaiian culture are deeply rooted in the traditional belief system and connection to the natural environment. Hawaiians have a profound respect for nature and its elements, and wind names reflect their reverence for the forces of nature. These names are a part of the rich cultural heritage and oral tradition of the Hawaiian people. The importance of Hawaiian wind names lies in their cultural, practical, and spiritual significance, connecting the people to their environment, enabling navigation, predicting weather, and preserving their cultural heritage.

Wind names also were important resources for understanding the surrounding environment. Hawaiian wind names are instrumental in navigation and wayfinding, particularly for voyaging canoes and seafaring traditions. Traditional Polynesian voyagers used their knowledge of the winds and stars to navigate across vast expanses of the Pacific Ocean. By knowing the characteristics and names of different winds, they could effectively chart their courses and find their way to distant islands.

Wind names are also crucial for predicting weather patterns in Hawai‘i. Hawaiians developed a deep understanding of the winds’ behavior and associated weather conditions based on their observations over generations. By identifying and naming different winds, they could anticipate changes in weather, ocean currents, and other natural phenomena, which was essential for agriculture, fishing, and daily activities.

The wind names reflect a close connection between the people and the environment. By acknowledging and naming specific winds, Hawaiians recognized the unique characteristics and qualities of each wind. This awareness promoted a harmonious relationship with nature and fostered a sense of responsibility for its preservation and sustainable use.

Today, some of the most important uses and preservation of Hawaiian wind names contribute to the retention and revitalization of the Hawaiian language, culture, and traditions. In a modern context, these names help to maintain and celebrate the unique cultural identity of the Hawaiian people, strengthening their sense of belonging and heritage.

The name Papa was identified as a wind associated with Honuaʻula. From the ʻōlelo noʻeau (proverbs) (**Section 4.3.1**), the Moaʻe wind is mentioned in association with Honuaʻula.

4.3 Intangible Cultural Resources

It is important to note that Honua Consulting's unique methodology divides cultural resources into two categories: biocultural resources and built environment resources. We define biocultural resources as elements that exist naturally in Hawaiʻi without human contact. These resources and their significance can be shown, proven, and observed through oral histories and literature. We define built environment resources as elements that exist through human interaction with biocultural resources whose existence and history can be defined, examined, and proven through anthropological and archaeological observation. Utilizing this methodology is critical in the preparation of a CIA as many resources, such as those related to akua, do not necessarily result in material evidence, but nonetheless are significant to members of the Native Hawaiian community.

4.3.1 ʻŌlelo Noʻeau

ʻŌlelo noʻeau are a vital source of cultural information about the area. ʻŌlelo noʻeau literally means "wise saying" and they encompass a wide variety of literary techniques and multiple layers of meaning common in the Hawaiian language. Considered to be the highest form of cultural expression in old Hawaiʻi, ʻōlelo noʻeau bring us closer to understanding the everyday thoughts, customs, and lives of those that created them.

The ʻōlelo noʻeau presented here relate to Honuaʻula. These ʻōlelo noʻeau are found in Pukui's *ʻŌlelo Noʻeau: Hawaiian Proverbs & Poetical Sayings* (1983). The number preceding each saying is provided.

88 ʻAi puaʻa a Kukeawe.
The pork eating of Kukeawe.

Said of a person who is not satisfied with the number of his own pigs and so robs his neighbors of theirs. Kukeawe was a friend of Kahekili who was allowed to help himself to any of Kahekili's pigs in Kula, Maui. But Kukeawe also took the pigs belonging to the people of Kula, Honuaʻula, and Kahikinui and plundered their possessions. These people rose in rebellion, led by ʻOpū, and surprised the followers of Kukeawe while they were ascending Haleakalā on the way to Kula. Kukeawe's party retreated but found their way blocked by other parties led by Kawehena, Kahoʻoluhina, and Kuheana. Kukeawe was killed and his body set up at Palauea.

1058 Honuaʻula, e pāluku ʻia ana na kihi poʻohiwi e na ʻale o ka Moaʻe.

Honua‘ula whose shoulders are pummeled by the Moa‘e wind.

A poetical expression for a person being buffeted by the wind. Honua‘ula, Maui, is a windy place.

1059 Honua‘ula kua la‘ola‘o.
Callous-backed Honua‘ula.

Said of the people of Honua‘ula, Maui, who were hard workers. The loads they carried often caused callouses on their backs.

4.3.2 Mele

Honua Consulting completed searches of mele written about the moku of Honua‘ula. Maui historian Inez Ashdown (1976) wrote about the importance of mele:

> The natives of Hawai‘i Ne‘i saw the Creator in everything and the Haku Mele or Music Masters delighted in presenting the chants and songs, mele and oli, to inspire the people. Such mele tell of God’s assistant spirits which, to the imaginative natives, represented the winds, rains, and so on. Each spirit of creation was depicted as male or female and was given a personality and a name indicative of purpose. Hence the name of the volcanic action creating and cleansing the earth. She is beautiful, alluring, desirable. She also is unpredictable because she is temperamental and usually full of fiery emotions. She is an old woman asking help when she lies to test mortals, and woe betide anyone who is rude or inconsiderate of this form of an older person to whom respect and Aloha must be given. (p. 3)

There are not a lot of mele about the ahupua‘a within Honua‘ula, especially when compared to other places throughout the islands. As such, only a handful of mele are provided. These are more about the region and Maui generally.

This first entry is an untitled epithalamium (the celebration of the mystery and bliss of the wedding night) for the marriage of a high chief and his high-born kapu sister. The marriage is between Wanahili, a princess of the mythological period who belonged to Puna, Hawai‘i, and Mana‘u, a mō‘ī of Hilo and the son of Kanehili, famous for his skill in spear throwing, maika rolling, and athletic exercises. The murmur of the breeze, the fury of the winds, the heat of the sun, the sacrificial ovens, all are symbols that set forth the emotions, experiences, and mysteries of the night (Emerson, 1998, pp. 99-101).

O Wanahili ka po loa ia Mana‘u	Wanahili bides the whole night with Manu‘a
O ka pu kau kama i Hawaii akea;	By trumpet hailed through broad Hawaii,
O ka pu leina kea a Kiha —	By the white vaulting conch of Kiha —
O Kiha nui a Pii-lani —	Great Kiha, offspring of Pii-lani,

O Kauhi kalana-honu-ʻa-Kama;	Father of eight-branched Kama-lala-walu
O ka maka iolena ke koohaulani iō!	The far-roaming eye now sparkles with joy,
O kela kanaka hoali mauna,	Whose energy erstwhile shook mountains,
O Ka Lani kuʻi hon oi ka moku.	The king who firm-bound the isles in one state,
I waihona kapuahi kanaka eha,	His glory, symboled by four human altars,
Aiʻi Kauai, i Oahu, i Maui,	Reaches Kauai, Oahu, Maui,
I Hawaii kahiko o Keawe enaena,	Hawaii the eld of Keawe,
Ke aʻā mai la me ke o-koko,	Whose tabu, burning with blood-red blaze,
Ke lapa-lapa la i ka makani,	Shoots flame-tongues that leap with the wind,
Makani kua, he Naulu.	The breeze from the mountain, the Naulu.
Kua ka Wainoa i ka Mikioi,	Waihoa humps its back, while cold Mikioi
Pu-ā ia lalo o Hala-liʻi,	Blows fierce and swift across Hala-liʻi.
Me he alii, alii, la no ka hele i Kekaha,	It vaunts like a king at Kekaha,
Ka hookiekie i ka liʻu-la,	Flaunting itself in the sun's heat,
Ka hele i ke alia-lia la, alia!	And lifts itself up in mirage,
Alia-lia laʻa-laau Kekaha.	Ghost-forms of woods and trees in Kekaha
Ke kaha o Kala-ihi, Wai-o-lono.	Sweeping o'er waste Kala-ihi, Water-of-Lono;
Ke olo la ke pihe a ka La, e!	While the sun shoots forth its fierce rays!
Ke nu la paha i Honua-ula.	Its heat, perchance, reaches to Honua-ula.

This next mele, "'Ulupalakua," was composed by John P. Watkins in 1947. An ancient Maui chief would send runners to Kipahulu for breadfruit. When they returned with the fruit, it was ripe. The chief called the district 'Ulupalakua or "breadfruit ripened on the back." Watkins visited 'Ulupalakua, in up-country Maui on the southwestern slopes of Haleakalā. He was so impressed by the cold mountain air, the scent of ginger, and the cowboys, he composed this mele to honor the district ("'Ulupalakua," n.d.).

'Ulupalakua – by John P. Watkins

Kaulana mai nei	Famous
Aʻo 'Ulupalakua	Is 'Ulupalakua
He 'īnikiniki ahiahi	The pangs of the cold evening air
Ka home aʻo paniolo	The home of the cowboys
E wehi e kuʻu lei	My lei is an adornment
Aʻo 'Ulupalakua	Of 'Ulupalakua
'Onaona me ka 'awapuhi	The sweet scent of ginger is
He nani maʻoli nō	Truly beautiful

Haʻina mai ka puana	Tell the refrain
Aʻo ʻUlupalakua	Of ʻUlupalakua
He ʻīnikiniki ahiahi	The pangs of the cold evening air
Ka home aʻo paniolo	The home of the cowboy

"Maui Nani E," written September 2, 2008, is about the changes of Maui due to the over development and overcrowding of foreigners, pushing out the kanaka Hawaiʻi from their homes and lands. The composer, Kealiʻi, is crying out to Maui to protect her kanaka Hawaiʻi in this mele ("Maui Nani E," n.d.).

Maui Nani E – by Kealiʻikaleoʻolaeanuikaumanamana VIII Blaisdell

Aloha kuʻu ʻāina	Love for my land,
ʻO Maui, nani e	Beautiful Maui
ʻĀina kaulana i ka nani	Land famed for its beauty
Heaku no wau e ō mai ʻoe	When I call to you, please answer
E ō mai e Maui	Respond O Maui!
Kēia ʻāina i aloha ai	This land that I love
E Maui ʻāina kaulana	Maui, famous land
Piha i ka nani kamahaʻo	You are filled with wondrous beauty
Heaku no wau e ō mai ʻoe	When I call to you, please answer
E ō mai e Maui	Respond O Maui!
Puʻuhonua nani a maikaʻi	A place of refuge, beautiful and good
He wahi mehameha nō ia	A place of solitude
He momi no ka Pākīpika	A pearl of the Pacific
Heaku no wau e ō mai ʻoe	When I call to you, please answer
E ō mai e Maui	Respond O Maui!
Haʻina ʻia mai ana ka puana	Told now is the song
ʻO Maui, nani e	Beautiful Maui
ʻĀina kaulana i ka nani	Land famed for its beauty
Heaku no wau e ō mai ʻoe	When I call to you, please answer
E ō mai e Maui	Respond O Maui!

Miriam Kekaulouhi, premier under Kamehameha III, established a penal colony for men on Kahoʻolawe in 1839. Women convicts were banished to Lānaʻi. Government supplies of food did not always arrive, and prisoners suffered from hunger, many dying of starvation. In March 1841, 15 men decided to swim to Maui for food. They prayed at Aikupau and when the tide ran towards Maui, they set out on their journey across the

Maui channel, landing at Puʻuolai near Mākena. They raided the coastline and loaded stolen canoes with provisions for their return to Kahoʻolawe. The canoes were then sent to Lānaʻi to bring the female prisoners to Kahoʻolawe. The penal colony was closed in 1857 (“Kahoʻolawe,” n.d.).

Kahoʻolawe – Words by Mary Heanu, Music by John Noble

Kaulana ka inoa o Kahoʻolawe lā	Famous is the name of Kahoʻolawe
Lei ana i ka pua o ka hinahina	And the lei of hinahina flowers
ʻOlelo kauoha no kuʻu aloha	It commands my love
Hina wau ika hewa mamuli oʻu	For you, engulfing me everafter
Mahea eke ala hiki aku ai	From whence comes this fragrance
Ko ae eke au i Kahoʻolawe	It comes to me from Kahoʻolawe
Ike ana ika nani oʻia ʻāina	I see the beauty of this land
Meke kai hone mai maka paia	Encompassed by sweetness from the surrounding sea
Noho aku hoi wau la hoʻolono	I will go to sit and listen
I kani hone mai leo o ka manu	To the pleasant chirping of the birds
Heaku no wau e ō mai ʻoe	When I call to you, please answer
Lei ana i ka pua o ka hinahina	Lei of the hinahina flowers

5.0 Oral Records, Interviews, and Consultations

An extensive body of ethnographic data was collected for this assessment. It includes previously conducted oral interviews from kūpuna of the area, as well as contemporaneously conducted interviews with practitioners familiar with the area.

5.1 Summary of Interviews in "He Moʻolelo ʻĀina No Kaʻeo…" (2006)

In 2006, co-authors of this study, Kepā Maly and Onaona Maly, conducted an extensive historical study for Sam and Jon Garcia entitled "He Moʻolelo ʻĀina No Kaʻeo…", which contained eight oral history interviews that were reviewed for this assessment. Interviewees included:

- Samuel Ponopake Kanaʻiaupuni Chang
- Marie Puanani Gomes-Olsen
- Eddie and Laurie Chang
- C.M. Kaʻōnohi Delima-Lee
- James Kapelakapuokakaʻe Kapohakimohewa (with Judy Kapohakimohewa)
- R. "Boogie" Luʻuwai
- Pardee Erdman
- Robert Lopaka Kalani

These oral history interviews provide invaluable insights into the cultural and historical landscape of the Mākena and Kaʻeo regions. These interviews were compiled as part of a broader effort to document traditional knowledge and personal recollections from kūpuna and kamaʻāina with generational ties to these lands. The primary focus of the interviews was the identification of cultural resources, land use patterns, fisheries, and changes in the landscape over time.

The interviewees, whose knowledge spans from oral traditions passed down through generations to personal experiences dating as far back as 1911, shared details about traditional land management, sacred sites, and the connections between families and their ancestral lands. The Kalani Heiau was a focal point of the discussions, as it was identified on the Garcia family property. While some interviewees had not heard of the heiau in their youth, others recalled learning about it later in life, often in connection with archaeological investigations. One interviewee, a member of the Lono-Kalani family, remembered learning about the heiau in childhood, associating it with family fishing customs.

Another significant element of the oral histories is the emphasis on Mākena's fisheries and shoreline resources. Many kūpuna described traditional fishing practices and the stewardship of marine resources, highlighting the importance of ʻĀpuakēhau Fishpond

and other coastal areas. The role of konohiki was also discussed, illustrating how resource management was once tightly controlled and tied to familial knowledge and community needs.

Several interviewees recalled the presence of huakaʻi pō (night marcher processions) in the area adjacent to the county facility and Keawalaʻi Church, reinforcing the continued spiritual presence in the region. One family reportedly abandoned an attempt to build a house in the area due to unexplained occurrences, believed to be related to the night marchers.

Regarding cultural preservation, all interviewees expressed strong support for the protection of Kalani Heiau and other cultural resources. Many emphasized the need for stewardship programs that integrate both community involvement and respect for indigenous knowledge systems. The Keawalaʻi Church, deeply rooted in the Mākena community, was identified as a key partner in preservation efforts.

The interviews also touched on land-use changes in Mākena and Kaʻeo, with kūpuna expressing concerns over increasing development and its impact on cultural sites. Many described how traditional pathways, old walls, and former habitation areas had been altered or lost over time, leading to a diminished sense of place. Despite these changes, the interviewees conveyed a deep commitment to passing on their knowledge to future generations, ensuring that the cultural landscape of Mākena and Kaʻeo remains recognized and respected.

“He Moʻolelo ʻĀina no Kaʻeo…” captures a wealth of oral history that underscores the intricate relationship between people, land, and culture in the Mākena-Kaʻeo region. Through their stories, the interviewees not only documented significant cultural resources but also advocated for their preservation. The continued collaboration between local families, the Garcia property owners, and organizations such as the Keawalaʻi Church is seen as essential in maintaining the integrity of these sacred and historical places.

5.2 Interview with Kaʻōnohi Lee

Interviewer: Matthew Sproat
Interviewee: Carol Maria Kaʻōnohi Lee

Summary

The interview conducted by Matthew Sproat with Carol Maria Kaonohi DeLima Lee, a retired state employee and native resident of the Mākena area, provides valuable insights into the cultural resources of Mākena and the potential impacts of the proposed Mākena Mauka Project. Kaonohi, who was born and raised in Oneloa, not far from the proposed development area, offers a unique perspective based on her familyʻs deep-rooted

connection to the land spanning multiple generations. Her family-owned land on both sides of the project area, with her father‘s family‘s land on one side and her mother‘s on the other. This generational connection to Mākena gives Kaonohi’s observations and concerns significant weight in understanding the cultural landscape and potential impacts of development. Kaonohi describes the Mākena of her childhood as very rural and rustic, primarily covered by kiawe (kiawe) forest. The community was small and spread out, with only a handful of residents including Maka’iwa (who lived in Keone`o`io), Auntie Kealohaaina Palenapa, Tutu Mary Auweloa, David Lono (who is related to CJ Elizares), and a few others after the church and near the landing. She explains that no one lived up on the Papa‘anui ridge at that time. This sparse population meant that the natural environment dominated the landscape, and daily life revolved around the resources provided by the land and sea. As children, Kaonohi and her siblings would either go to the beach or make up their own paniolo games, like making "stick horses" made from kiawe branches, using the kīawe trees as feeding stations and wiliwili seeds being salt for the “horse” in their imaginative play.

One of the significant cultural aspects Kaonohi discusses is the traditional relationship between the coastal communities of Mākena and the upland communities of Ulupalakua. She describes a symbiotic exchange system where upland communities would provide beef and vegetables, while the coastal communities provided ocean resources. This relationship was essential to both communities‘ survival and cultural practices. Kaonohi explains that her grandfather would go fishing, and the people in Ulupalakua would see this activity from their vantage point and gather their goods for exchange. When the fish were brought ashore, the communities would exchange their respective resources. This traditional system represented a holistic understanding of resource management across the ahupua‘a (traditional land division extending from the mountains to the sea).

Kaonohi expresses concern that modern development has severed this connection between upland and coastal communities, disrupting the traditional resource management system. She views the current development pattern, which cuts across multiple ahupua‘a rather than working within the traditional mauka-to-makai (mountain-to-sea) flow, as particularly problematic. She states, "When I look at this, I see obstruction of that. Not only in one ahupua’a, but across. And because they‘re going across and not up and down, that is even more of an impact." This observation highlights the cultural importance of land division patterns and how modern development often conflicts with traditional Hawaiian land management principles.

The marine resources of the Mākena area are identified as significant cultural resources that have already been impacted by development. Mali [do you mean Kepa Maly] describes Mākena Bay as historically "very rich" in resources. From her family home at the edge of the bay, they could once see abundant limu (seaweed), ‘opihi (limpets), and other marine life on the rocks. However, she laments that these resources are no longer visible, noting the occasional appearance of "white bubbles" in the water, which she finds disturbing. She attributes this resource decline to impacts "from land development and ocean activities," positioning the Mākena community "right in the middle" of these converging pressures. The interview reveals that golf course development has already

significantly impacted the marine environment, with Kaonohi referencing a Canadian science professor who conducted surveys in the area during her summers and linked the tumors once found on green sea turtles (honu) to runoff from the golf courses.

Kaonohi identifies several specific cultural resources and practices tied to the Mākena area. She mentions fishing as a central cultural practice, with her father primarily engaged in nearshore fishing using throw nets rather than pole fishing or deep-sea fishing (surround-net). When asked about target species, she indicates whatever was available at the time rather than targeting specific species, as "whatever fish is our dinner." Species mentioned include akule, uhu, weke (which was so tasty when her mother cooked it), and manini (which she considered too bony though everyone else enjoyed it). This opportunistic approach to fishing reflects a subsistence lifestyle where the ocean served as the community‘s "ice box," as Kaonohi puts it.

Traditional fishing methods included throw netting, spearfishing, free-deep sea diving and hukilau (a communal fishing method involving surrounding fish with a net). Kaonohi explains that hukilau was typically conducted for large gatherings such as the Kukahiko Reunion or church events. The area in front of the church and the landing areas being the best locations because there was area to stand on the shore and pull the nets. This indicates that fishing was not only a subsistence activity but also a communal practice that strengthened social bonds within the community.

The interview also touches on the importance of limu (seaweed) as a cultural resource. Kaonohi recalls spending entire days in the water swimming and eating limu for sustenance directly off the rocks, particularly mentioning the green "fat one" that could be eaten without cleaning because the water was so clean at that time. This personal memory highlights both the abundance of marine resources in the past and the cultural practice of harvesting and consuming limu, which has diminished with declining water quality and resource availability.

Springs and freshwater sources are identified as important cultural resources that have been impacted by development. Kaonohi mentions that some residents, including Tutu Mary and Aunty Kealoha’aina, who lived in Maluaka, had their own wells. Her family received water from Olinda through a county waterline, though her father had to build a tank to collect and store the water due to low pressure their distance from the source. She emphasizes the importance of freshwater sources not only for human use but also for the health of the marine ecosystem, particularly for limu cultivation. The interview suggests that development has disrupted the natural flow of freshwater to the ocean, impacting the balance of the coastal ecosystem.

The climate and weather patterns of Mākena are discussed as cultural resources that have been affected by land use changes. Kaonohi describes how the area experienced a daily "blessing of a rain cloud bank spanning from Ulupalakua to Kaho’olawe" in the afternoons, known as Na’ulu, which provided respite from the heat. She notes that this pattern had diminished during the 1970s through 1990s but is "starting to come back," which she attributes to the reforestation efforts on Kaho`olawe, Sumner Erdman,

Ulupalakua Ranch, and now, Art Medeiros in Auwahi and CJ in Makenaplanting native trees. This observation highlights the cultural significance of traditional weather patterns and how they are connected to vegetation and land management practices from ma uka i kai.

Kaonohi challenges the perception of Mākena as simply an arid area, explaining that while it is hot, the soil is rich "because of the lava filter." She recalls her grandfather growing various vegetables and fruits, including mangoes (common, and Pake or Chinese varieties) and even fig trees. This indicates that the land‘s agricultural potential is part of its cultural value, though this potential has been diminished by introduced species like kiawe, which Kaonohi notes "take all the water that‘s needed for the native plants."

Archaeological sites are acknowledged as significant cultural resources within the project area. When asked about the likelihood of finding iwi (ancestral remains) in the project area, Kaonohi suggests that while a formal burial ground might not be found, individual burials could be found because kupuna (ancestors) would sometimes bury `ohana where they lived. She expresses hope that archaeological investigations will provide a better understanding of the historical habitation patterns in the area, including "how long people lived in the area. When did they leave? Why did they leave?" This perspective emphasizes the value of archaeological sites not just as physical resources to be preserved but as sources of cultural knowledge and connection to the past.

The interview reveals that the surrounding landscape, particularly the native vegetation of the Kanaio area with its wiliwili trees and lehua, is considered a cultural resource. Kaonohi describes the beauty of hearing birds and feeling the "misty air" in the mornings, experiences that connected her to the natural environment during her childhood. She expresses concern that development will impact this connection between the honua (land) and the envirnomental elements, suggesting that the cultural value of the landscape extends beyond individual plants or sites to encompass the holistic experience of place and the connections between man and the different elements of the ecosystem; its life-cycle.

Regarding potential impacts from the Mākena Mauka Project, Kaonohi identifies several concerns. First, she worries about increased foot traffic, which she says is "already starting." This increased human presence could affect both the physical environment and the social landscape. She notes that the increased human foot traffic will likely come down to the beach areas near resident homes because they cannot access the private property within the development, thus concentrating impact in certain areas.

Kaonohi expresses concern about the cumulative impact of multiple developments in the area. She mentions that North and South Ka`eo are going to be "built out" between Makena Alanui and Makena Road, from the landing [Papa‘anui] to Honoiki [Ka`eo], with additional development planned from Honoiki to just before the church. She also reveals that there is another development planned adjacent to the Mākena Mauka Project called "Mākena Ranch Estates," which she describes as "gentlemen estates." This cumulative

development leads her to fear that local residents will be "squished" between developments and the ocean and further impact the ocean resources.

The interview highlights concerns about the impact of development on drainage patterns and water quality. Kaonohi notes that "drainage goes somewhere" and expects that unless landscaping is established quickly, the development will affect weather patterns and water flow. She sees the potential for development to exacerbate the existing impacts on the reef system, which she describes as already "decimated." While she acknowledges that mitigation measures like drainage systems are planned, she questions their effectiveness and emphasizes the need to consult true experts who understand the specific characteristics of the Mākena environment.

Community impact emerges as a central concern in the interview. Kaonohi observes that development is "dividing some of us," with younger generations particularly upset about the changes. She acknowledges the reality that local people cannot afford to buy the land in question, so the challenge becomes how to "build it in a way that is right for us, not just for those that are coming." She emphasizes the importance of creating a genuine community where different groups can interact comfortably, noting that in "the old day, from one community to the next, everybody knew each other." The current development pattern, with luxury homes in separate enclaves, fails to create this kind of integrated community: "The only time they‘re a community is when they have big gala events or golf tournament or whatever. It‘s not the community of old."

The interview discusses how property taxes and housing affordability present significant challenges for local residents. Ka‘onohi shares that before they received the Kuleana designation for their property, their annual property taxes were $40,000, an amount that local residents generally cannot afford. She explains that high property values driven by luxury developments make it difficult for local residents to remain in or return to the area, and she suggests that developers address this issue by creating a fund to offset tax burdens for affordable housing.

Additional concerns include ocean safety, with Ka‘onohi noting that Mākena State Park has the highest ocean activity injury rate. Shoreline erosion due to climate change, is occurring at locations like Oneloa, Maluaka, and Mākena Bay. She also expresses concern about Makena Road, comparing the situation at Olowalu where road improvements and realignment have been necessary due to erosion.

Despite these concerns, Ka‘onohi identifies some potential positive aspects of the development. She values the opportunity to "go back on the land", “reclaim space” that has been "off limits for us for generations," allowing community members to reconnect with their ancestral spaces, even if it comes "a little late." She also sees potential in reestablishing native plants in areas where kiawe is being removed, suggesting that if native plants flourish there, it could serve as a model for restoration in the larger project areas.

When asked about recommendations for best management practices, Kaonohi emphasizes the importance of understanding the land‘s natural systems, particularly identifying the "prominent streams", its source and exit, before development begins. This knowledge whould inform mitigation measures that would benefit both the project and the community, ultimately protecting the ocean resources that are also "a commodity that they sell." She suggests that developers should learn from past mistakes, such as the runoff issues and redirection or blockage of streams that occurred with previous developments, which have dried up freshwater sources and natural wetlands that used protect and fed the nearshore environment.

Ka‘onohi also recommends creating a fund to support the local community and focusing on "building community" by creating conditions that allow local people to "come back to their land." While she acknowledges that developers need to make a profit, she suggests this should not be "hand over fist" at the expense of a community’s well-being. Her final assessment reflects a pragmatic perspective: "You can‘t stop progress. No more enough kala (money) to buy all that land. So what‘s the alternative? Just help them build a good community."

The interview with Ka‘onohi Lee provides valuable insights into the cultural resources of Mākena and how the proposed development might impact these resources and the community. Her deep connection to the area and her understanding of both traditional and contemporary issues offers a nuanced perspective on the challenges and opportunities presented by the Mākena Mauka Project. Her recommendations emphasize the importance of understanding and respecting the land‘s natural systems, preserving cultural resources and practices, and working to build a genuine community that includes both long-time residents and newcomers. This perspective highlights the complex interplay between cultural preservation, environmental protection, and community development in the context of modern land use decisions in Hawaii.

5.3 Interview with Edward “Eddie” Chang

Interviewer: Matthew Sproat
Interviewee: Edward Chang

Summary

The interview with Edward Chang offers important insights into the cultural resources of Makena, including marine ecosystems, fishing practices, native species, traditional community structures, and subsistence patterns. His observations about the potential impacts of the Mākena Mauka Project highlight concerns about exclusivity, affordability, water management, and the loss of community character, while also suggesting the possibility of mitigating these impacts through engagement with developers. As a longtime resident with deep family ties to the area, Chang’s perspective provides an essential voice in understanding what is at stake in the development of Makena and how cultural resources might be protected amidst inevitable change.

Biography

Edward Chang, who was born in Wailuku in 1932 and has lived in Makena since he was three years old, offers a unique multigenerational connection to the area. As the oldest in his family, with a father who was a farmer, Chang's experiences span nearly nine decades of Makena's history, from before World War II to the present day. His mixed heritage (Chinese, Hawaiian, and Caucasian) and deep family connections to the area (his family has owned their land since 1883) provide him with a comprehensive understanding of the historical and cultural landscape of Makena.

Makena of the Past

Chang begins by describing the historical access to Makena, noting that in earlier times, the only way to reach the area was through the old Ulupalakua Road, which no longer exists today. He explains that Makena was once more developed, with a substantial church and an elementary school that his father attended. Chang recalls that when he was growing up in the 1940s, there were approximately 14 families living in the area from Kenai to Ulupalakua Road, though he notes that during his father's time, there may have been around 30 families. This historical context provides important insight into the demographic changes in Makena over time, from a more populous community with educational and religious institutions to a gradually depopulating area prior to modern resort development.

Chang discusses the interconnected community relationships that characterized traditional life in Makena. He explains that "almost all of us were related somehow or another" through intermarriage over generations, and even those not directly related had been in the area so long that "it's almost like we're related." He mentions several family names with historical connections to Makena, including the Kukahiko family (his own ancestors), Awaloa, Peters, Lono, Lema, and others. Chang explains how these families were interconnected through marriage, creating a close-knit community where resources and knowledge were shared. This social structure represents an important cultural resource that facilitates traditional resource management and cultural transmission.

Cultural Resources and Traditional Practices

The interview reveals several cultural resources in the Makena area, with particular emphasis on ocean resources and traditional practices. Chang emphasizes that approximately 70% of meals for Makena residents came from the ocean, indicating the crucial importance of marine resources to the community's subsistence and cultural practices. He describes a variety of fishing methods used by residents, including throw net fishing (known as "throw net") and spearfishing (referred to as "pie-pie"). Target species included uhu (parrotfish), kala, palani, neneue, and moi. Evening fishing was conducted for certain species, while daytime fishing targeted others. Chang notes that during his youth, the waters were exceptionally clean, and the beach areas were largely

accessible only to the few families that lived along the seven-mile stretch of coast, allowing residents intimate knowledge of "every fish hole, every manini hole, every moi hole, the best places to dive."

The interview highlights the dramatic changes in marine resources over time. Chang laments that many of the productive fishing areas "don't exist anymore because it's overpopulated," and that "the fish that we used to have is hardly any." He expresses concern about overfishing, noting that he often sees people taking more fish than they can eat, treating catches as "trophies." This observation speaks to changing relationships with marine resources and the impacts of increased population and tourism on traditional subsistence practices. Chang's comments reveal the degradation of a once-pristine marine ecosystem that served as the primary food source for local residents and was central to their cultural practices.

Traditional food preparation methods are mentioned as cultural practices associated with the area. Chang describes how residents would prepare manini (convict tang) by pouring hot water over them to make soup, a practice he suggests is now uncommon even among local residents on the island. He also mentions the consumption of dried fish, which was dried and then tenderized through the pulehu method (cooking over hot coals). Additionally, residents ate "jerk meat" (presumably dried beef), salmon, and butterfish (black cod). These food preparation practices represent important cultural knowledge tied to the subsistence patterns of Makena residents.

Freshwater resources are identified as a significant cultural resource, though historically limited in the area. Chang explains that during his father's and great-grandmother's generations, residents depended on wells for water, which were hand-drawn without mechanical pumps. He notes that water quality in Makena was poor, and that later, water was brought in primarily for cattle, with human residents benefiting secondarily. The interview reveals that these wells no longer exist, having collapsed or been covered over time. Chang also discusses periodic streams that flow during heavy rainfall, mentioning that Makena has "some streams that really has high flow, over a thousand cubic feet per second" between his home and Makena, including one that goes through his property. This information indicates the presence of significant, if intermittent, freshwater resources that have influenced settlement patterns and resource management in the area.

Chang identifies the Hawaiian hoary bat as an important native animal species in the area. When asked about native Hawaiian animals or birds in the area, he immediately mentions that "when I was a kid, there were a lot of bats here," and confirms that they can still be seen "fluttering around in the evening just before sunset." His description of the bats' distinctive flight pattern ("they flutter... like a big moth because they don't fly like a bird") demonstrates his observational knowledge of this endangered native species.

Additionally, Chang mentions that the area used to have numerous doves and quails, though the quail population has diminished significantly, which he attributes to predators and the fact that quail nest on the ground.

The wiliwili tree (*Erythrina sandwicensis*) is identified as an important native plant resource. Chang confirms that wiliwili "grows wild here" and notes that "if you got good rainfall, you'll start to see more young ones come up." He explains that the wood was traditionally used to make floats for nets, specifically for hukilau (a communal fishing method) floats and outrigger floats. This information connects the native flora directly to traditional fishing practices, demonstrating the integrated nature of terrestrial and marine resources in Hawaiian cultural practices.

The interview touches on land-based subsistence practices in Makena. Chang notes that among the 14 families that lived in the area during his youth, about six raised pigs for personal consumption, and many also raised chickens. His own father was "a big hog grazer" who at times had approximately 200 sows, with the total number of pigs sometimes reaching 700-800 or even 1,000. Chang mentions that before World War II, a delivery truck would come to sell vegetables, though this service stopped when the war began. These agricultural practices represent important aspects of the area's cultural landscape and food systems.

The interview reveals information about historical sites and settlement patterns. Chang states that "evidence of habitation is really sparse" once you move away from the shoreline, noting that more populated areas existed in Ulupalakua, Kula, and along parts of the shoreline. He attributes this settlement pattern primarily to water availability, explaining that "the water source was mostly close to the mountains." This observation provides context for understanding the archaeological record and traditional land use patterns in the area. Chang expresses skepticism about the significance of some identified archaeological sites, suggesting that "some of the archeology is overdone" and relating an anecdote about old cattle pens being misidentified as significant sites.

The interview addresses the changing nature of access to cultural resources. Chang notes that beaches that were once accessible primarily to locals are now heavily used by tourists and commercial operations. He expresses frustration about commercial activities that "take up all the parking that normal people will use" and states that "the beaches are actually overtaken by them." This concern about beach access represents a significant issue related to the continued practice of traditional activities and the maintenance of community connections to place.

Potential Impacts of the Project

Regarding potential impacts of the proposed Mākena Mauka Project, Chang expresses "mixed emotions." He notes that when he first returned to Maui after his retirement, locals

were allowed to use the golf courses at reasonable rates, but this practice has disappeared, with current golf fees around $200 per round compared to the $15 he used to pay. This change represents a shift from community accessibility to exclusivity that concerns him about future development. He laments that the area “has been privatized for five years now” and is “underused,” wishing for “a development that’s more mixed” rather than one designed exclusively for wealthy individuals.

Chang identifies several specific concerns about the proposed development’s impacts. He expresses disappointment that the development is aimed exclusively at “big money” buyers, creating “a specialty high price place for rich people.” He acknowledges the economic reality that “the property initially sold for so much that the developer can’t sell it for less,” but wishes for an approach to development that would include options for local residents. Chang suggests that “the locals should have an avenue to come to Makena, and it shouldn’t be priced like that,” proposing that developers should “give us 20 acres to run a Hawaiian community.”

Water management and runoff emerge as significant environmental concerns in the interview. Chang mentions that an earlier developer built “an eight-acre catchment to catch the water and let it slowly go into the ocean” to address the problem of heavy rainfall creating sudden runoff that muddies the ocean. He notes that the current developers have “a thousand acres, and he has three streams running through that thousand acres,” creating both responsibility and opportunity for proper water management. Chang expresses cautious optimism that the developers “are going to do something that will improve the runoff,” though he notes that previous mistakes, such as building “Honoiki Road right on top of an old stream bed” with only “a two-foot duck [duct]” as a substitute, have created ongoing problems.

The interview reveals concerns about the privatization of space and the loss of community character. Chang contrasts the close-knit, supportive community of his youth with the current trend toward gated communities and exclusive development. He expresses frustration that promises for community facilities often don’t materialize, noting that “top echelon heads keep changing” and “promises never stay true.” Chang mentions that there were plans for “a small shopping center” and community facilities in a particular area, but “they’re developing everything else, but they haven‘t talked about that yet.” This concern about broken promises suggests skepticism about developers’ commitments to community benefits.

Chang also expresses concern about the cumulative impacts of development and tourism on ocean resources. He notes that the beaches are “overpopulated, under-managed” and that “we’re not doing a very good job of replenishing” marine resources. He particularly identifies commercial beach activities as problematic, stating that “we get hurt more by

commercializing the beach than anything else" and describing how "kayaks, God's divers" occupy spaces that "normal people will use." This observation suggests that tourism management may be as significant a concern as development itself.

Despite these concerns, Chang acknowledges the inevitability of change and expresses a pragmatic approach to influencing development. He describes his philosophy as "I'd rather sit inside and have them listen to me" rather than opposing development entirely from the outside. He notes the importance of engaging with developers to encourage better practices, stating that his own insistence has led to improvements in runoff management plans. This approach represents a strategic response to development pressure that seeks to mitigate impacts rather than prevent change entirely.

The interview also touches on broader issues of housing affordability and community sustainability. Chang notes that "we're lacking some legislation to take care of our own people" and expresses concern about non-residents owning multiple properties while locals struggle to find housing. He reflects on the challenges faced by younger generations, stating, "I pity these kids that are my generation kids and their generation because I don't know what they're going to find" in terms of housing and employment opportunities on Maui. This perspective connects the specific development issues in Makena to island-wide concerns about sustainability and equity.

Throughout the interview, Chang provides a nuanced perspective on development that acknowledges both the need for change and the importance of preserving cultural resources and community access. While he expresses numerous concerns about the Mākena Mauka Project and similar developments, he also recognizes the potential for positive impacts if developers can be persuaded to incorporate community needs into their plans. His long history in the area provides valuable context for understanding both the historical significance of Makena's cultural resources and the complex challenges facing the community today.

5.4 Interview with Kalei Lu‘uwai

Interviewer: Matthew Sproat
Interviewee: Kalei Lu‘uwai

Summary

The interview with Kalei Lu‘uwai provides valuable insights into the cultural resources of Makena and the potential impacts of the proposed development project. He identifies marine resources, traditional fishing practices, archaeological sites, ranching infrastructure, and community relationships as key cultural resources in the area. His primary concerns about the project center on water management, including well drilling, runoff, and wastewater treatment; changes in beach access and use patterns; and the

transformation of community structure from reciprocal relationships to more transactional interactions. While acknowledging positive aspects of the developer's approach to cultural resource management and local hiring, Kalei ultimately questions whether the project aligns with cultural values and community needs. His perspective, informed by generational ties to the area and technical expertise as an engineer, offers important considerations for assessing the cultural impacts of the Mākena Mauka Project and developing appropriate mitigation measures.

Biography

Kalei Lu'uwai is a retired maintenance manager for Gracious City who previously worked for 34 years at the sugar mill. Kalei, who identifies as being from the Kukahiko family lineage, offers a perspective informed by his generational ties to Mākena and his experiences there as a child and young adult, particularly during visits to his grandparents' home. This interview illuminates the traditional landscape of Makena, customary practices that were once prevalent, and concerns about how modern development may affect both the cultural and natural resources of the area.

Kalei's connection to Makena is through his family's longstanding presence in the area. He explains that his family is part of the "ocean side of the Kukuhiko clan," with the Kukahiko family originating from Ulupalakua. This establishes his credentials as someone with lineal descendancy to the area, making his knowledge of cultural resources particularly relevant. While Kalei was born in Wailuku and did some traveling during his youth, including time in the South Seas and Honolulu, he frequently returned to Makena to stay with his grandparents during holidays and summers. These experiences grounded him in the traditional practices and environmental knowledge of the area, which he shares throughout the interview.

Makena of the Past

Kalei paints a vivid picture of Makena during his childhood, describing it as a rural area with "cattle guards, dust road, and only us." The infrastructure was minimal, with water lines coming from Ulupalakua that carried so much rust that residents had to place a Bull Durham tobacco bag on the water pipe to filter it. The limited water supply meant showers could only be taken during daylight hours when the water was warm enough. Telephone service was equally rudimentary, with a party line requiring users to wait until others had finished their calls before making their own. This description establishes the isolated, rustic character of traditional Makena before modern development transformed the area.

Cultural Resources and Traditional Practices

The ocean and its resources emerge as centrally important cultural resources in Kalei's account. He describes extensive fishing activities that were fundamental to subsistence in the area. His grandfather taught him fishing techniques from a young age, often taking

him fishing instead of having him work on building their house during the hot midday hours. Kalei mentions several traditional fishing methods practiced in Makena, including hukilau (a communal fishing technique using nets), paipai (fish netting), and tako (octopus fishing). The family also had a small boat that they used for fishing, catching kona crab. As he grew older and his father purchased larger boats, they began fishing at Kahoʻolawe, a practice he mentions they "still go Kahoʻolawe all the time," indicating the continuation of this cultural practice.

The maritime landscape Kalei describes is more complex than it might appear to visitors today. While acknowledging that parts of Makena's shoreline are sandy, he clarifies that it's not uniformly sandy but rather features "veins of sand that go out" amid areas of "sand rock." This mixed substrate supported diverse marine resources and fishing practices. Kalei also mentions that his grandfather engaged in moi fishing using nets, a practice that was once common in the area. These descriptions indicate the richness of marine resources that supported traditional subsistence practices and the intimate knowledge of the seascape held by residents.

Beyond fishing, Kalei describes cultural practices related to beach stewardship. He recalls that as children, they were required by his grandmother to "clean all the beaches first" before they could enjoy recreational activities. This involved raking away ʻopala (trash) left by visitors and burning it, as there were no garbage collection services at the time. They would also collect bottles along the roadsides. This practice reflects the cultural value of mālama ʻāina (caring for the land) and demonstrates how locals took responsibility for maintaining the coastal environment even as outsiders began to impact it.

The interview reveals information about cultural resources related to the cattle industry that once dominated the area. Kalei describes a "cow pen" near their house, explaining that this was a loading area where cattle were transferred from shore to ships. He notes that at Sandy Beach, to the right of their house on a round rock, there are still visible rust marks from chains used by whalers. The process involved anchoring offshore, sending a rope to the shore, and then using the rope to drag cattle by their horns out to the waiting boats. This infrastructure represents a significant historical and cultural resource related to the ranching era in Makena.

Kalei also mentions that aerial photographs of Makena show "all the old rock walls" that were constructed to "divert the cattle to the landing, to the cow pen." These rock walls represent important cultural landscape features that document the ranching history of the area. He notes that before the proliferation of kīawe trees, which he estimates occurred within the last 100 years, the upland areas were primarily "shrub land." This observation provides insight into vegetation changes that have occurred within living memory and

suggests that the current landscape of kīawe-dominated forest is relatively recent rather than a long-established ecosystem.

The interview identifies archaeological sites as significant cultural resources in the Makena area. Kalei states that “there’s a lot of sites up in that place,” specifically mentioning “house sites” and noting that “a lot of people used to live over there.” He attributes this settlement pattern to the presence of water, noting that “in the brackets, people get water.” This suggests that despite the arid appearance of the landscape, there were water sources that supported habitation in the past. Kalei stated that “I know it was a big community down there;” “big community" indicates that the archaeological record of habitation is likely more extensive than might be apparent from surface observations.

When asked about the likelihood of burials in the area, Kalei suggests that burial sites might be found in cave areas, noting, “if you get caved, you might get one burial.” However, he also speculates that ancient Hawaiians would have preferred to bury people in sandy areas rather than the rocky uplands because it would be “more easy” to dig in sand. This observation reflects traditional knowledge about burial practices and provides guidance for archaeological sensitivity during development. Kalei mentions that his son works for CJ [Elizares of Mākena Golf & Beach Club] on “site restoration and the replanting of native plants,” and that they occasionally find sites which they document but “don’t expose it because they don’t want other people finding it.” This suggests ongoing identification and management of archaeological resources in the area.

The interview touches briefly on changes in vegetation and the impact of introduced species. Kalei contrasts the current kīawe-dominated landscape with historical photographs showing fewer trees. He notes that as a child, he and his peers rarely ventured into the upland areas because “we never have slippers, we don’t have shoes” and the kīawe thorns made the area inaccessible. This kept their activities focused along the shoreline. This observation highlights how changing vegetation patterns have altered human use of the landscape and potentially obscured archaeological features. Joseph also mentions that deer are “really screwing things up” in the area, as they “eat the grass down to the nubs,” contributing to erosion and runoff issues during heavy rainfall.

Potential Impacts of the Project

Water resources emerge as a critical concern in Kalei’s discussion of potential project impacts. He identifies several water-related issues that could affect cultural resources. First, he expresses concern about the drilling of wells to supply the development, stating that this could divert water “that used to come up to the ocean.” Kalei explains that this could change the dynamics of the nearshore marine environment, affecting resources that depend on the freshwater input. He notes that the effects might not be immediately apparent but could manifest over “15, 20 years” as “it takes time for the water to progress

out." He emphasizes that "nobody's ever studied the long-term effects of drilling wells next to an arid land," highlighting a significant gap in environmental impact assessment.

Kalei also discusses concerns about runoff and sedimentation. He recalls that when the golf course was first built in the mid-1980s or early 1990s, a heavy rain event resulted in the entire bay being "filled out with mud for six months." While acknowledging that current regulations require more stringent mitigation measures, he notes that "you cannot stop a 100-year rain" and that the significant slopes in Makena will inevitably channel water to the ocean during extreme weather events. He observes that the current land cover of grazing lands contributes to this problem, particularly with deer reducing vegetation cover. These observations highlight the potential for development to exacerbate existing water quality issues that affect marine cultural resources.

A third water-related concern involves wastewater management. Kalei mentions that the development includes a sewage treatment plant and questions whether the effluent is treated to R1 standards (the highest level of wastewater treatment) and how it will be disposed of. He recommends that the effluent "should be potable" to minimize environmental impacts when it is returned to the land or used for irrigation. This concern reflects an understanding of how wastewater management can affect groundwater and eventually marine resources that are culturally significant.

The interview reveals concerns about impacts on community structure and access to cultural resources. Kalei states definitively that "it's going to be a gated community" because "discovery, that's all they build." This prediction raises issues about access to cultural sites and resources within the development area. He expresses skepticism about the developer's promises regarding affordable housing, questioning, "Who's going to afford the property tax?" even if the housing itself is subsidized. He notes that before securing ʻĀina Kūpuna status (a property tax relief program for long-term landowners), his family's property tax was "$30,000 a year," making it financially challenging to maintain their generational property despite their deep cultural connections to the place.

Kalei identifies changes in beach use patterns as a significant cultural impact. He recalls that in his youth, "only us was at Sandy, a little beach" where they would spend the entire day, only returning home for meals. The transformation of once-quiet beaches into crowded tourist destinations has altered traditional patterns of use. When asked about current fishing practices, Kalei responds, "we don't fish anymore," explaining that they occasionally "throw a pole in front of the house" but no longer engage in the more extensive fishing practices of the past. This change represents a significant loss of cultural practice directly attributable to development and increased population.

The interview also touches on the changing social dynamics in Makena. Kalei contrasts the traditional community where everyone knew and supported each other with the

anticipated influx of wealthy seasonal residents. He asks rhetorically, “You think it’ll be locals up there? Who can afford $10 million, one house?” and notes that for wealthy buyers, the homes will be a “second home for them. They don’t care. They come, enjoy, and they leave.” Meanwhile, “people that live here have to deal with all the consequences and all the issues that are created.” This observation speaks to the potential loss of community cohesion and the replacement of reciprocal social relationships with more transactional interactions.

Despite these concerns, Kalei acknowledges some positive aspects of the current development approach. He states that “discovery is very concerned about that. They got a really good outreach program. What they’re doing to preserve the native plants, the archeological sites is wonderful. And the reforestation is wonderful.” He appreciates that the developer has hired locals, including his own son and relatives of other community members, noting that “they smart those guys. They hire all the local kids. Their parents are not going to get too out of hand.” This suggests a strategic approach by the developer to build community relationships while proceeding with their plans.

Mitigation Measures and Recommendations

When asked for recommendations should the project proceed, Kalei reiterates the importance of water management, stating that developers need to “watch the water. What they’re drawing as a resource that they’re going to draw and what they do with it.” He emphasizes again that “their effluent should be potable” to minimize environmental impacts. Regarding affordable housing, he suggests that any such program should prioritize “lineal descendants,” stating that “they could help the linear descendants to live in the affordable housing.” This suggestion reflects a desire to maintain cultural continuity in the area by ensuring that families with historical ties can remain present.

Throughout the interview, Kalei’s perspective is pragmatic but concerned. When asked directly if the project is pono (righteous or proper), he responds, “I don’t think that’s pono, personally,” but acknowledges the economic realities driving development. He questions whether “Maui need 300 more luxury homes” but recognizes that the developers are “about making money.” This balanced perspective recognizes both the cultural impacts of the proposed development and the economic forces that make it difficult to prevent.

5.5 Interview with Kealahou Alika

Interviewer: Matthew Sproat
Interviewee: Kealahou Clifford Alika

The interview conducted by Matthew Sproat with Kealahou Clifford Alika provides significant insights into the cultural resources of Mākena and the potential impacts of the proposed Mākena Mauka Project. Alika, a retired United Church of Christ minister who

served at Keawalaʻi Congregational Church in Mākena from February 1991 until February 2020, offers a unique perspective that bridges traditional Hawaiian cultural values and Christian religious practices. His experiences at the church, which he describes as the one physical structure that remains is "the only thing left in Mākena from the early years," position him as a valuable informant on the communityʻs cultural resources and the changes he has witnessed over time.

Born in Kealakekua Hospital and raised in Keauhou Mauka on the Island of Hawaii, Kealahou draws parallels between South Maui and Kona, noting similarities in environment, resources, and cultural practices. He observes that "thereʻs something about South Maui thatʻs like Kona," particularly regarding the significance of fishing as a cultural practice. His childhood memory included days spent at Keauhou Bay. His maternal grandfather owned property upon which a lhouse had been built years earlier. The house had an outdoor concrete well with a water catchment system that was a defining characteristic of life in the area.

The area was surrounded by land owned by Bishop Estate. When the estate prepared plans to build a hotel, golf course and condominiums, long-time local residents and land owners were essentially compelled to sell their properties or accept a land exchange.

Kealahou's memories of the "beach" house reminded him of the conditions in early Mākena. This connection between the two areas, Kealahou and Mākena, informs his understanding of Mākena's cultural landscape and traditional practices.

The interview identifies Keawalaʻi Congregational Church itself as a significant cultural resource in Mākena. Founded in 1832, the church represents the intersection of Native Hawaiian culture and introduced Christian beliefs. Kealahou explains that while other historical features of Mākena—including Changʻs Store, a post office, and a school near Puʻu Ōlaʻi—have disappeared, the church remains as a tangible connection to the communityʻs past. This historical continuity makes the church not only a religious institution but also a repository of community memory and cultural practices. Alika shares an interesting detail about early church offerings, noting that historical records show contributions of "kaʻau opelu" (Hawaiian mackerel scad fish) rather than money, illustrating how traditional subsistence practices were integrated into the new religious context.

Kealahou discusses his efforts to harmonize Hawaiian cultural practices with Christian worship at the church, addressing the tensions between "ancestral knowledge and then what came with the missionaries." He recounts how he encouraged the incorporation of hula into church services despite initial resistance based on missionary-imposed taboos. When women were hesitant to dance on the altar, he encouraged them, saying "just dance," after which hula became accepted in the church without controversy. This integration of traditional Hawaiian cultural expressions into Christian worship represents an important aspect of cultural preservation and adaptation in the face of historical prohibitions.

The interview reveals the church's role as a community center and its function in maintaining social connections across generations and between resident groups. Kealahou describes how he performed marriages as well as memorial services for local families, baptized their children when they returned to visit, blessed their homes and maintained relationships even after families moved away. He notes that even now, families "still send Christmas cards" to the church, demonstrating the ongoing connections fostered by this cultural institution. This function of the church as a hub for community relationships represents a significant cultural resource that extends beyond religious practice to encompass social cohesion and cultural continuity.

The changing composition of the church reflects broader demographic shifts in Mākena. Kealahou explains that when he first arrived, the congregation included long-established local families like the Kawekane, DeLima, Poepoe, Kauai, Kapohakimohewa, Kanoho, Fernandez, Luʻuwai, Chang, and other families, who were primarily "makua or kupuna" (parents or elders). Over time, however, many of these Hawaiian family members died. Others, especially their mo'opuna moved away. The church began to include malihini residents, particularly those who came to Maui in an earlier wave of development, such as the families associated with McCoy Studio Theater and the Shaefer International Gallery at the Maui Arts & Cultural Center in Kahului. Others were residents of developments at Wailea Point and Mākena Surf

Kealahou distinguishes between some of the earlier malihini residents who "supported the church" and more importantly became part of the community, and newer arrivals associated with more recent developments. He is concerned that those who are now "coming in" see their presence as a real estate transaction "not as an investment in becoming part of the community."

The interview identifies fishing grounds and marine resources as essential cultural resources that have already been significantly impacted by development. Kealahou recalls childhood experiences fishing with bamboo poles, when children could "catch right away" and believe they were "the greatest fishermen around." He mentions specific marine resources like ʻalaʻihi (a red fish with many bones that his mother considered "junk"), upāpalu (a preferred fish species), and wana (sea urchin) that his mother would collect and prepare. These references to specific marine species and their cultural uses illustrate the detailed ecological knowledge embedded in traditional subsistence practices. Kealahou notes that these resources have diminished over time, stating that when he speaks with longtime Mākena residents, they report "no more limu, "no more the limu, no more the fish," attributing these changes to "development run off." This observation connects directly to concerns about how the proposed Mākena Mauka Project might further impact marine cultural resources.

The interview touches on archaeological resources in the area, particularly in relation to the church. Kealahou shares that during renovation work to address deteriorating coral mortar in the church's walls, an archaeologist noted that the rocks used to build the church may have come from a nearby heiau. Rather than viewing this as a desecration or appropriation, Kealahou offers a nuanced perspective that acknowledges both the

Hawaiian and Christian aspects of this material connection: "So it‘s not one over the other. It‘s that they‘re together now and it‘s okay." This insight reflects his approach to cultural resources as dynamic and interconnected rather than rigidly separated, suggesting that contemporary management of cultural resources should similarly recognize these complexities.

Kealahou identifies community itself as perhaps the most significant cultural resource threatened by development. He explains that traditional communities in Mākena were characterized by mutual knowledge and trust: "in the old days, everybody know everybody. No need lock, nothing. You go Mākena. You just go to house, right? Just go inside." In contrast, he expresses concern about gated communities being developed in the area, stating "it‘s telling us you don‘t belong in here. It‘s segregation." This observation highlights how physical barriers can reinforce social divisions and undermine the communal relationships that characterized traditional Hawaiian society.

The interview reveals Kealahou‘s perspective on the differing relationships to place demonstrated by various groups in Mākena. He draws a distinction between "being in Maui physically and Maui being in you," deeply concerned that many new property owners lack a deep connection to the place. He quotes the lyrics to the song “The Beauty of Mauna Kea” in which the composer recalls when someone moves away from Hawai‘i, a memory of a particular place will remain. “Now to any land you go she will be with you. If you love her like I do – O Mauna Kea.” The same could be said for Mākena.

Kealahou questions whether new residents in developments like Mākena Mauka will develop this kind of relationship or if “it’s only extraction… only money.” This cultural understanding of reciprocal relationships with place represents an important Hawaiian value system that informs how impacts to cultural resources are conceptualized and evaluated.

Regarding potential impacts of the Mākena Mauka Project on cultural resources, Kealahou suggests that many negative impacts on marine resources have "already happened." When asked if the project would have similar effects to what he witnessed in Keauhou, where development resulted in siltation that damaged coral reefs and fishing grounds, he responds that "the question isn‘t, is it going to happen? For me, the question is, how are they going to restore it?" This perspective shifts the focus from prevention to restoration and accountability, recognizing the cumulative impacts of development in the area over time.

Kealahou expresses concern about the increase in visitor numbers at Oneloa, One‘uli and Mākena landing, noting that he asked CJ Elizares, Director of ‘Ōiwi Resources & Stewardship at Mākena Golf & Beach Resort, about boat traffic. He learned from CJ that as many as “400 people" can be in the water offshore of Mākena Landing when tour boats arrive each morning from Molokini. This level of use also includes scuba divers and kayakers and represents a significant change from the traditional pattern of beach use and access, potentially affecting both the physical environment and cultural practices associated with these coastal areas. While not directly caused by the Mākena Mauka

Project, this existing pressure on beach resources provides context for understanding how additional development might compound these impacts.

The interview touches on how development changes the social dynamics of communities. Kealahou expresses concern that developments like Mākena Mauka create "a community that‘s artificial... not relational with neighbors." He notes that contemporary development in Hawaii "is not about living in a place and raising a family and growing up in a place," but rather about investment properties and second homes. This shift undermines the intergenerational connections and place-based knowledge that characterize traditional Hawaiian communities, representing a significant cultural impact beyond physical changes to the landscape.

Regarding the integration of Hawaiian values and practices within development contexts, Kealahou discusses the challenges of cultural education and engagement. He questions "how do we teach others? And do they want to learn? Or is it only extraction?" This raises important considerations about whether and how cultural resources can be protected when new residents may lack interest in or understanding of their significance. He suggests that creating opportunities for cultural engagement, such as through the recently completely construction of the hale pili (traditional Hawaiian structure) that was made possible with the kōkua of young adults who are lineal descendants of Mākena as well as new residents to the area might provide a mechanism for building relationships and cultural understanding among new residents.

When asked for recommendations should the project proceed, Kealahou emphasizes the importance of governance structures, particularly the Homeowners Association (HOA). He notes that while developers "can walk away" after the project is completed, the HOA will have ongoing influence over how the community engages with cultural resources and practices. This observation highlights the importance of incorporating cultural values and commitments into the institutional frameworks that will govern the development after construction is complete, rather than relying solely on the initial developer’s intentions.

Kealahou specifically recommends that someone like CJ Elizares, who manages ‘Ōiwi Resources and Stewardship and the hale pili, should maintain a role in the development. He praises CJ‘s knowledge of native plants and cultural practices, stating "he carries that knowledge" that connects care for the land with community well-being. This recommendation reflects the understanding that cultural resources require ongoing stewardship by individuals with appropriate knowledge and relationships, rather than simply being "preserved" as static objects. He also supports the development of communal spaces like an amphitheater where people could gather for music or meetings, suggesting that such spaces could foster community connections that might otherwise be lost in a development-oriented toward private property and exclusivity.

Throughout the interview, Kealahou’s perspective on cultural resources reflects his unique position bridging Hawaiian cultural values and Christian religious practices. Rather than treating these as opposed systems, he articulates a nuanced approach that seeks integration and mutual respect. This approach informs his assessment of how

developments like Mākena Mauka might impact cultural resources—not simply by altering physical features of the landscape, but by potentially undermining the relationships, practices, and community structures that give meaning to those features.

The interview reveals several key cultural resources in Mākena that could be affected by the proposed development: the church as a historical structure and community institution; marine resources that support traditional fishing and gathering practices; the traditional community structure characterized by mutual support and open access; and the cultural knowledge and practices that connect residents to the place through reciprocal relationships. Kealahou's insights suggest that impacts to these resources cannot be adequately mitigated through physical preservation alone, but require attention to social relationships, governance structures, and opportunities for cultural engagement and education.

Kealahou's recommendations for the Mākena Mauka Project emphasize the importance of institutional frameworks that center Hawaiian cultural values and knowledge, specifically highlighting the role of cultural practitioners like CJ Elizares in ongoing management decisions. He suggests that community spaces and cultural programs could help foster the relationships necessary for meaningful stewardship of cultural resources, while expressing concern that conventional development approaches centered on private property and exclusivity may undermine these efforts. His perspective offers important considerations for how cultural impact assessments might move beyond cataloging physical resources to address the living cultural systems that give them meaning and ensure their continuity across generations.

In conclusion, the interview with Kealahou Clifford Alika provides valuable insights into the cultural resources of Mākena and potential impacts from the proposed Mākena Mauka Project. His expertise as the former minister of Keawala'i Congregational Church, combined with his thoughtful navigation of both Hawaiian and Christian traditions, offers a nuanced perspective on how development affects not only physical cultural resources but also the community relationships and cultural practices that sustain them. His recommendations emphasize the importance of centering Hawaiian cultural knowledge and creating institutional frameworks that support ongoing community engagement with cultural resources, suggesting that meaningful mitigation of cultural impacts requires attention to governance structures, community spaces, and opportunities for relationship-building across diverse resident groups.

5.6 Interview with CJ Elizares

Interviewer: Matthew Sproat
Interviewee: CJ Elizares

Summary

The interview with CJ Elizares reveals the complex interplay between cultural resources, modern development, and efforts to maintain traditional practices in a changing landscape. While expressing concerns about broader patterns of development and

tourism, CJ indicated that the current project has the potential to be implemented with greater cultural sensitivity than previous developments in the area. He emphasized that maintaining Makena's cultural identity requires keeping local families connected to the area and ensuring that newcomers understand they are entering a place with deep cultural significance that extends beyond property boundaries. His perspective highlights the importance of considering not just physical and cultural sites but also the living cultural practices and knowledge systems that give them meaning.

Biography

CJ Elizares serves as the ʻŌiwi Resources and Stewardship Director for Mākena Golf & Beach Club. He provided extensive insights into the rich cultural resources and practices of the Makena/Honuaʻula region.

Cultural Resources and Traditional Practices

The marine environment represents one of the area's most significant cultural resources, with generations of Hawaiian families having relied on fishing practices centered around akule (bigeye scad), kala, and manini. Traditional fishing methods, particularly surround net techniques for akule, were highly specialized and knowledge-based, with fishermen knowing precisely when and where to harvest specific species based on seasonal patterns. CJ noted that these practices continue but have been altered by modern development and increased tourism, with akule now remaining further offshore except during periods of reduced human activity, as observed during COVID. The gathering of limu, especially limu kala, constitutes another important cultural practice that continues today, though primarily for ceremonial purposes rather than as a regular food source as in previous generations.

The hydrological resources of the area form another crucial cultural element, with underground freshwater that emerges through submarine springs creating unique microclimates that support traditional settlements. CJ identified three main springs in the bay that nurture distinctive marine ecosystems and remain visible to those who know where to look. These freshwater resources historically dictated settlement patterns, with cultural sites concentrated around water sources. The freshwater interfaces created a TEK system, establishing relationships between mauka communities with agricultural resources and makai communities with access to water and marine resources. These traditional exchange networks shaped cultural practices and social relationships that influenced the development of the entire moku.

Archaeological and cultural sites represent an extensive cultural resource, with CJ describing "kīpuka" areas containing up to 27 house sites along with their associated agricultural terraces. These sites, many dating back approximately 400 years, demonstrate sophisticated indigenous knowledge of the landscape, including water

catchment systems and terraced gardens designed to maximize limited rainfall. He indicated that these sites are scattered throughout the property, often appearing unexpectedly amid areas that have been disturbed by modern or historical land uses. CJ expressed concern about preserving these sites while acknowledging the developers' efforts to work with cultural practitioners to identify and protect significant areas. Traditional pathways, including those believed to be used by night marchers, cross through the project area, representing another cultural resource requiring respect and protection.

The botanical resources of the area constitute a significant cultural element that has undergone dramatic changes. CJ described a substantial Wiliwili forest that persists despite historical disruptions and serves multiple cultural functions, including providing wood for traditional floating devices used in hukilau fishing, which CJ helped revive after a 30-year lapse. Historical vegetation included Kalo, wiliwili, lama, ʻiliahi (sandalwood), koa, koaiʻa, koko, kopiko, possibly aiea, kauila, ʻohia, and various native grasses, though many have been lost due to the sandalwood trade, ranching, and modern development. Pili grass, traditionally used for thatching dwellings, is now rare in the area except where CJ has personally planted it. The interview revealed the cultural significance of these plants not just as ecological features but as resources intimately connected to traditional practices, material culture, and Hawaiian identity.

Native wildlife, particularly birds, represent important cultural resources with both practical and spiritual significance. CJ detailed the seasonal presence of ʻiwa birds (frigate birds) that use the area for training their young to ride thermal currents, Hawaiian hoary bats most visible in winter months, pueo (Hawaiian owl), aeʻo (Hawaiian stilt), kōloa (Hawaiian duck), nēnē, and ʻio (Hawaiian hawk). These species are significant in traditional cultural understandings of the landscape and feature in moʻolelo that connect the area to broader Hawaiian cosmology. Interestingly, CJ noted that golf course water features have unexpectedly created valuable habitats for some native birds, presenting a complex picture of how modern development can sometimes create unintended beneficial spaces for culturally significant species.

Traditional moʻolelo about the land constitute a critical cultural resource that gives meaning to the physical landscape. CJ shared stories connecting Puʻu Ōlaʻi and Molokini to Pele, describing how these landforms represent the body parts of a moʻo that was cut by Pele. He explained how these stories relate to observable natural phenomena such as cloud movements and rain patterns, demonstrating the sophisticated way traditional knowledge encoded environmental information within cultural narratives. The continued transmission of these stories represents an important cultural practice that helps maintain Hawaiian connections to place across generations. CJ expressed concern that

development could disrupt the contextual landscape within which these stories make sense.

Potential Impacts of the Project

Regarding impacts on cultural practices, CJ provided a nuanced perspective, noting that the most significant disruptions come not necessarily from the current development but from increased tourism, commercial operators, and changing demographics. Access to traditional fishing grounds and beaches has become more difficult due to crowds and what CJ described as "nīele" (nosy) tourists who question local families' presence at beaches that were once gathering places for Hawaiian families. These social pressures have pushed some cultural practices "into the shadows," with practitioners becoming reluctant to share knowledge of special gathering places to avoid them becoming commodified for tourism. The psychological impact of displacement was evident in CJ's description of family members who stay away from ancestral areas due to past trauma from development and who "cry at home and no say nothing."

Property taxes represent another significant threat to cultural practices, as increased land values driven by luxury development make it increasingly difficult for Hawaiian families to retain ancestral lands. CJ suggested that the county implement special tax rates for lineal descendants and kamaʻāina to help address this issue, emphasizing that maintaining cultural connections requires the physical presence of cultural practitioners. Having deliberated for three years before deciding to work with the developers, CJ now sees his role as helping to mitigate impacts by ensuring protection of native species, advocating for culturally appropriate landscaping, and designing lighting to minimize impacts on native wildlife. He expressed hope that development could potentially improve some aspects of the cultural landscape through native plant restoration and the creation of protected areas for culturally significant species.

5.7 Interview with Leahi Hall

Interviewer: Matthew Sproat
Interviewee: Leahi Hall

Summary

The interview with Leahi Hall provides a nuanced view of the potential impacts of the Mākena Mauka Project on cultural resources, suggesting that with proper consultation of cultural and lineal descendants and full compliance with SHPD protocols, integration of knowledge, and empowerment of cultural practitioners in decision-making processes, the project could potentially contribute to the restoration of both ecological and cultural relationships in Makena. Hall's perspective highlights the inseparable connection between natural and cultural resources in the Hawaiian worldview and emphasizes that preserving cultural resources requires attention to relationships and community structures as much as to physical sites and species.

Biography

Leahi Hall is the Community Engagement Director at Mākena Golf & Beach Club. She provides valuable insights into the cultural landscape of Makena, Hawai'i, and discusses potential impacts of the Mākena Mauka Project on the area's cultural resources. Hall, who was born and raised on Maui and spent considerable time in Makena with her parents who are active members of Hui Alanui o Makena, offers a perspective deeply rooted in both personal experience and cultural understanding of the area. Hui Alanui o Makena Hall's connection to Makena began through her parents' involvement in Hui Alanui o Makena, a community movement that formed in Makena following the Hui Alaloa movement on Moloka'i. A primary goal of the group was to keep the old road, the Alaloa, open in front of what would later become the Maui Prince Hotel. This led to a settlement agreement with Seibu, signed by twelve individuals, ten of whom were native to Honua'ula. Hall recalls memories of significant cultural figures from the area, including Auntie Alice Kuloloio, Uncle Eddie Chang Sr and Auntie Harriet, Kahu Kawika Ka'alakea, and Uncle Rene Sylva. Her experiences as a child accompanying her parents to various community activities and meetings fostered her understanding and connection to the place.

Hui Alanui o Makena

Hall's connection to Makena began through her parents' involvement in Hui Alanui o Makena, a community movement that formed following the Hui Alanui movement on Moloka'i. The group's primary goal was to keep the old road, the Alanui, open in front of what would later become the Maui Prince Hotel. This led to a settlement agreement with Seibu, signed by eleven individuals, nine of whom were native to Honua'ula. Hall recalls memories of significant cultural figures from the area, including Auntie Alice Kuloloio, Uncle Eddie Chang Sr, Auntie Harriet, Kahu Kawika Ka'alakea, and Uncle Rene Sylva. Her experiences as a child accompanying her parents to various community activities and meetings fostered her understanding and connection to the place.

Hall emphasizes the importance of the Hawaiian movement's focus on "activation," where people gather to rebalance themselves and the place in response to changes or threats to cultural sites. She describes how the Hui Alanui o Makena movement maintains multi-generational spaces, connection to Honua'ula, and preserves the role of kūpuna and native and locally significant plants in the community. This contrasts with the current situation where younger generations often work in the area but are too exhausted to participate in cultural practices or observations that traditionally occur during times like sunrise and sunset. Hall expresses concern that without comfortable living spaces for families, the traditional cultural relationships to the land and between generations cannot flourish.

Cultural Resources and Traditional Practices

The interview highlights the significance of community as a cultural resource. Hall explains communal nature of Hawaii's lifeways, and Makena being a communal area. When asked about changes she has observed in Makena from her childhood to present day, Hall notes a more recent historical reduction in panini (prickly pear) plants but also points out positive developments, such as the return of certain native plants. She

mentions that through the efforts of the Mākena ʻŌiwi Resources and Stewardship (ORS) team led by CJ [Elizares], native plants like Nehe and Maiapilo are returning to the area. This illustrates how cultural practitioners who are present on the land can recognize and nurture the "expression of the spirit of the place."

Hall identifies several native Hawaiian flora that should be considered cultural resources within the project area, including Wiliwili, Iliahi (sandalwood), Maiapilo, Nehe, and Akia. She emphasizes that beyond the plants themselves, the relationship between the people and these resources would benefit from nurturance. She mentions fishing families who have particular relationships to different types of fishing and specific spots used for triangulation that are important to maintain. This underscores the interconnected nature of cultural resources that extends beyond physical sites to include practices and relationships.

A significant concern raised by Hall is the potential impact of development on nearshore resources. She warns that if proper precautions are not taken, particularly regarding drainage and integration with flora and fauna considerations, the project could negatively impact the marine ecosystem. This would subsequently affect traditional fishing practices. Hall stresses the importance of engaging knowledgeable consultants who understand the specific environment of Mākena, not just general subject matter experts. She advocates for an integrated team approach and for empowering people who know the space well to coordinate and influence final decisions about mitigation measures.

The interview delves into traditional stories and cultural features of the area. Hall references the story of Inaina who becomes Puʻu Ōlaʻi, described as a moʻo in the tale. She mentions moʻolelo about water movement in the space, including intermittent springs near the shoreline. She discusses the Naulu wind current that carries clouds from Ulupalakua to Kahoʻolawe and how the ORS farm is designed to reflect this wind pattern, embodying the Hawaiian practice of creating resonance with natural phenomena. Hall also mentions traditional shark relationships in the area, including the shark ~~of~~ Kaʻalamikihau belonging to a particular Makena family and another at Palauea Beach belonging to a particular family.

Throughout the interview, Hall emphasizes that cultural resources are not just about physical sites or species but about relationships – between people and place, between generations, and within the ecosystem. She expresses hope that the project will contribute to the return of native species and Native Hawaiian people to Makena, allowing for the continuation and revitalization of cultural practices and relationships.

Potential Impacts of the Project

Regarding potential project impacts on cultural resources and practices, Hall expresses concern about the wells needed for the project. She explains that if the project uses wells without ensuring that the aquifer is recharged, it will impact the ecosystem and people's ability to practice traditional activities because the nearshore water won't percolate up,

affecting seaweed growth and the foundational level of the marine ecosystem. She also emphasizes the importance of careful decision-making regarding archaeological sites.

Mitigation Measures and Recommendations

Hall recommends that if archaeological evidence (iwi) is discovered during development, the project should comply with the SHPD process but also select archaeologists who are approved by the Cultural Focus Group, comprised of descendants and knowledgeable individuals of the area. She stresses that site-specific decisions should be made by people who understand how the Makena ecosystem is interconnected, not by those unfamiliar with the area's cultural and environmental complexities.

A recurring theme in Hall's interview is the importance of empowering the right people to make decisions about natural and cultural resources. She specifically mentions CJ and the ORS team as knowledgeable individuals who should be involved in decision-making processes. However, she worries that these individuals are becoming stressed and overworked because they are not adequately resourced to maintain both their cultural responsibilities and healthy family relationships.

Hall advocates for creating spaces where Native Hawaiian families can return to live in Makena. She envisions housing that would support multi-generational living, allowing kupuna and keiki to be together and providing the community support that families need. She suggests that such housing should be positioned to allow residents to observe traditional natural phenomena like sunrise and sunset, enabling them to continue cultural practices of observation. While acknowledging that workforce housing is planned for the area (60-100 units), she expresses concern that these homes need to be appealing and comfortable for families to want to move there.

The interview reveals Hall's deep concern for maintaining the balance between environmental protection and community well-being. She states that the land reflects the state of the people, and if solutions only address natural resources without considering human relationships, the cultural equation remains unsolved. Hall's perspective emphasizes that a culturally sensitive approach to development must consider both the preservation of native flora and fauna and the nurturing of human communities and their relationships to these resources.

In her closing remarks, Hall expresses gratitude for the kupuna of Makena who welcomed her mother and father . She voices concern about the current imbalance where primarily elderly residents remain in Makena, with younger generations unable to live there. She emphasizes the importance of finding ways to bring younger generations back to the area in a way that works for them, so they don't feel isolated while living and working in Makena.

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6.0 Traditional or Customary Practices Historically in the Study Area and Surrounding Area

This section is not intended to be a comprehensive list of all the practices that historically or contemporaneously occur in the project area, but instead is meant to show the range of traditional or customary practices that took place in the larger geographic extent. Many of these practices may not have taken place within the project area, although they may actively occur within the larger ahupuaʻa or within the moku of Honuaʻula.

6.1 Moʻolelo

There are moʻolelo about Honuaʻula and the geographic extent provided in **Sections 3.2 (Traditional Period)** and in **Section 4.0 (Cultural Resources)**.

6.1.1 Moʻo Traditions

In Hawaiian culture, moʻo serve as powerful bridges between the spiritual realm and the natural world. These divine guardians have profoundly shaped moʻolelo, documenting and preserving knowledge about the islands' natural landscapes through generations of oral storytelling.

Moʻo are typically depicted as powerful, shapeshifting beings that can appear as enormous lizards or beautiful women. They primarily inhabit freshwater environments like streams, springs, and fishponds, acting as fierce protectors of these precious resources. Through stories about these deities, Hawaiians have maintained detailed ecological knowledge and cultural connections to specific places.

Native Hawaiian scholar Marie Alohalani Brown (2022) explains:

> …the fearsome and fascinating Hawaiian gods known as moʻo who embody the life-giving and death-dealing properties of water, the element with which they are associated. Moʻo are not ocean dwellers. Instead, they live primarily in or near bodies of fresh water. As a class of deities, they vary greatly in size – as huge as mountain or as tiny as a house gecko. Many moʻo have alternate forms. Predominately female, those moʻo who masquerade as humans are often described as stunningly beautiful. Tradition holds that when you come across a body of fresh water in a secluded area and everything is eerily still, you should not linger for you have stumbled across the home of a moʻo. When the plants are yellowed and the water covered with a greenish-yellow froth, the moʻo is at home. (p. 3)

Brown (2022) also describes the specificity with which identifiable moʻo were associated with certain locations:

> Not withstanding the fact that moʻo akua are akua wai, there is no evidence in the extensive archive of Hawaiian belief narratives and historical treatises to support the idea that the majority of our ancestors believed that this class of deities, *as a whole*, could transform into water. That said, a few moʻo do have a water-related form such as fog, mist, a rainbow, a kind of rain, or the power to control clouds or water. As a rule, their relationship with water is most evidence in terms of where they live. Specifically, moʻo akua are generally associated with specific bodies of water or damp places and attributed with district dispositions that tend to parallel these locations. Thus, to better understand the ways that moʻo embody water, we should consider the physical attributes and cultural significance of their watery abodes. (p. 45, emphasis in original)

Numerous interviewees mentioned the importance of moʻo traditions to Mākena. One of the most striking examples in the tradition of moʻo is the moʻolelo of Puʻuoinaina, a massive moʻo whose body once stretched between the islands of Kahoʻolawe and Maui. Some reference the name of the moʻo in this area as Inaina, Brown identifies the moʻo as Puʻuoinaina. According to the tradition, this enormous deity created a physical bridge between the two islands until a fateful encounter with the volcano goddess Pele. In her wrath, Pele cut Puʻuoinaina in half, separating the islands and creating the channel known as ʻAlalākeiki. The severed portions of Puʻuoinaina's body transformed into prominent landforms still visible today – some say the head became Puʻu Koaʻe on Kahoʻolawe while the tail formed Puʻuōlaʻi near Mākena, Maui. Brown (2022) provides a variation on this:

> When Puʻuoinaina took Pele's lover, Lohiʻau, as her own [lover], Pele was furious. One day, while Puʻuoinaina was sleeping in her moʻo form, which stretched from Kahoʻolawe to Makena Point on Maui, Pele cut her in half. The hill known as Mākena Point on Maui is the remnant of her tail, and Moʻokini is her head. (p. 110)

This dramatic narrative explains not only the creation of the channel between islands but also documents specific geographical features and their relationship to each other, embedding geological knowledge within a memorable story.

Similarly, as previously discussed in this assessment, the famous moʻo Kihawahine, deified daughter of Maui chief Piʻilani, became the guardian of numerous fishponds and waterways throughout Maui. Her moʻolelo catalogs these water sources, effectively creating a cultural map of critical freshwater systems. These stories teach listeners about proper resource management and the consequences of disrespecting these sacred places.

Beyond their geographical significance, moʻo moʻolelo establish ethical relationships with the natural world. These stories emphasize kuleana (responsibility) toward natural resources by showing how moʻo reward respectful behavior and punish exploitation or

waste. When people honor water sources protected by moʻo, the narratives explain, they receive abundance; when they disrespect these places, consequences follow swiftly.

What makes these moʻolelo so effective as environmental documentation is their emotional resonance. By anthropomorphizing natural features through moʻo characters with personalities, desires, and histories, Hawaiian storytellers created memorable systems for transmitting biocultural knowledge. The story of Puʻuoinaina's bisection does not just explain the channel between Maui and Kahoʻolawe—it captures the dynamic geological processes that shaped the Hawaiian archipelago through a dramatic narrative of conflict between powerful deities.

Today, these traditional moʻolelo continue to inform cultural and environmental restoration efforts throughout Hawaiʻi. As communities work to protect wahi pana, moʻo narratives provide both spiritual motivation and practical guidance about natural systems. The recounting of these moʻolelo by area descendants in the ethnographic data demonstrates the important perpetuation of this tradition in Makena.

6.2 Habitation

The history of habitation in Makena is deeply intertwined with the broader history of the Honuaʻula moku. This region, characterized by its arid landscapes and proximity to the ocean, played a significant role in the settlement patterns and subsistence strategies of Native Hawaiians for centuries. Archaeological and historical records indicate that Kaʻeo and Makena were once thriving centers of Hawaiian life, featuring residential complexes, agricultural systems, and religious sites that reflected the cultural and environmental adaptations of their inhabitants.

6.2.1 Early Hawaiian Settlement and Land Use

The earliest recorded descriptions of habitation in Makena and Kaʻeo suggest that the region was occupied by native Hawaiian communities who practiced a blend of coastal and upland subsistence activities. The presence of extensive habitation sites, including house platforms, walls, and agricultural terraces, indicates that Native Hawaiians lived in these areas for generations, relying on both the land and the sea for sustenance.

Hawaiians lived extensively throughout the islands. Handy et al. (1972) identify how different kānaka and their ʻohana lived in accordance with what the authors termed "occupational contrasts" (p. 286), meaning that based on occupation (i.e., planter or fisherman, etc.), habitation systems differed. Handy et al. (1972) explain:

> The typical homestead or *kauhale*… consisted of the sleeping or common house, the men's house, women's eating house, and storehouse, and generally stood in

> relative isolation in dispersed communities. It was only when topography or the physical character of an area required close proximity of homes that villages exist. There was no term for village. Kauhale meant homestead, and when there were a number of kauhale close together the same term was used. The old Hawaiians, in other words, had no conception of village or town as a corporate social entity. The terrain and the subsistence economy naturally created the dispersed community of scattered homesteads. (p. 284)

The traditional Hawaiian home was known as a hale, which was a simple structure made of natural materials, such as wood, thatch, and lava rocks. The hale was typically rectangular in shape, with a sloping roof that was thatched with palm fronds or other accessible vegetation. The walls were made of woven mats or a framework of wooden poles covered with woven coconut leaves or bark. The floor was typically made of packed dirt or crushed coral.

6.2.2 Agricultural Practices and Habitation

In addition to traditional farming, the residents of Makena engaged in agroforestry, incorporating tree crops such as hala (*Pandanus tectorius*), niu (coconut), and wiliwili into their subsistence strategies. These trees not only provided food, but also served important cultural and practical functions, supplying materials for canoe building, cordage, and clothing. Agricultural practices are further discussed in **Section 6.4 (Farming)**.

6.2.3 Changes in Land Tenure and Residency

Under the Māhele, large portions of Makena were awarded to aliʻi and government officials, while some lands were made available to commoners through the Kuleana Act of 1850. By the late 19th century, ʻUlupalakua Ranch had acquired significant portions of Kaʻeo, shifting land use from traditional Hawaiian agriculture to cattle grazing. This transition had profound effects on the landscape, contributing to deforestation, soil erosion, and the decline of native plant species. The introduction of invasive species such as kīawe further altered the environment, making it more difficult for native flora and fauna to thrive.

6.2.4 Contemporary Preservation Efforts

The 20th century saw further changes in habitation patterns, with many Native Hawaiian families leaving the area due to economic pressures and limited access to land, which often resulted from histories of settler colonialism that impacted the islands. The development of tourism and real estate in the latter half of the century further transformed Makena, as resorts and luxury homes replaced traditional fishing villages and agricultural lands.

Despite these changes, efforts to preserve and revitalize the cultural heritage of Mākena have gained momentum in recent years. Community organizations, cultural practitioners, and researchers have worked to document historical sites, protect sacred places, and restore traditional land management practices. Programs aimed at reintroducing native plants, preserving archaeological sites, and educating the public about the history of the region are helping to reconnect people with the land.

Today, Makena remains an area of cultural and historical significance, reflecting the resilience of the Hawaiian people and their enduring connection to the ʻāina. While modernization and development continue to shape the landscape, efforts to honor and protect the rich history of habitation in the region ensure that the stories of past generations are not forgotten.

6.3 Travel and Trail Usage

The ability to travel was essential to Hawaiians and enabled their sustainability. Travel, and the freedom to move throughout different areas, had different names, including huakaʻi, kaʻapuni, or kaʻahele. Traveling by sea had distinct names as well, like ʻaumoana. Traveling through the mountains was sometimes referred to as hele mauna. Travel, and moving throughout various places and regions was an essential practice and way of life in traditional Hawaiʻi.

The freedom to travel safely was so important that Kamehameha I would come to pass a well-known law protecting travelers, Ke Kānāwai Māmalahoe (The Law of the Splintered Paddle). It is explained by the William S. Richardson School of Law as follows:

> As a young warrior chief, Kamehameha the Great came upon commoners fishing along the shoreline. He attacked the fishermen, but during the struggle caught his foot in a lava crevice. One of the fleeing fishermen turned and broke a canoe paddle over the young chief's head. The fisherman's act reminded Kamehameha that human life was precious and deserved respect, and that it is wrong for the powerful to mistreat those who may be weaker.
>
> Years later when Kamehameha became ruler of Hawaiʻi, he declared one of his first laws, *Ke Kānāwai Māmalahoe* (the Law of the Splintered Paddle), which guaranteed the safety of the highways to all. This royal edict was law over the entire Hawaiian kingdom during the reign of Kamehameha the Great. Considered one of the most important *kānāwai* (royal edict), the law gave the Hawaiian people an era of freedom from violent assault. ("Ke Kānāwai Māmalahoe," n.d.)

The kānāwai (law) reads:

E nā kānaka	O my people
E mālama ʻoukou i ke akua	Honor thy god
A e mālama hoʻi	Respect alike, the rights of
Ke kānaka nui a me kānaka iki	All men great and humble
E hele ka ʻelemakule	See to it that our aged,
Ka luahine, a me ke kama	Our women, and children
A moe i ke ala	Lie down to sleep by the roadside
Aʻohe mea nana e hoʻopilikia	Without fear of harm
Hewa no, make	Disobey, and die

The law would have such long-lasting resonance that it would be expressly incorporated into the Hawaiʻi State Constitution.[19]

As traveling through traditional trails was the primary means by which people traveled on land throughout most of Hawaiian history, the traditional trail system is particularly important throughout the Hawaiian Islands. Throughout the islands, there were numerous trails that allowed for people to access different locations. This trail system was critical not only for maintaining a healthy population and managing this population, but it was also important for the traditional economic system of bartering. The trail system allowed for different localized communities to engage and interact. This also allowed for the trade of goods throughout island communities.

There is no doubt that traditionally Hawaiians traveled through the project area, but more contemporaneously, this travel would have been limited by ranching activities that utilized fencing to keep cattle within property boundaries.

Within the project area of the Mākena Mauka development in Honuaʻula, Maui, several trails and trail-associated historic sites have been documented, reflecting both precontact Native Hawaiian and early historic uses of the landscape. These features provide crucial insight into the region's cultural and economic evolution over centuries.

One of the most historically prominent trails in the region is the alaloa, or the King's Trail, also known as the Hoapili Trail. This ancient footpath was constructed during the reign of the 16th-century aliʻi Piʻilani and continued by his sons. The trail once encircled the island of Maui, facilitating movement of goods, resources, and people, and improving intra-island communication. Portions of this extensive trail network, often paved with basalt stones and measuring four to six feet in width, extended inland and upland, connecting

[19] Article IX. Section 10 of the Hawaii State Constitution reads: "The law of the splintered paddle, mamala-hoe kanawai, decreed by Kamehameha I--Let every elderly person, woman and child lie by the roadside in safety--shall be a unique and living symbol of the State's concern for public safety."

coastal villages to agricultural areas, forest zones, and ceremonial sites, including Haleakalā and Puʻu Kukui. Where it intersected with large gulches, users employed vines, ropes, or canoes to traverse the terrain.

Torbert's Road is another significant historic trail-like feature within the project area. Constructed in 1849 by American settler Linton L. Torbert, the road was built to connect his upland plantation lands in Ulupalakua to the Mākena shoreline. This privately financed road served both agricultural and logistical purposes, enabling Torbert to transport sugarcane and Irish potatoes from the upland fields to his shipping point at the coast. A Royal Patent Land Grant (No. 223) later formalized ownership of this strip of land. The road was approximately three miles in length and ascended nearly 2,000 feet, with travelers recounting the strenuous nature of the climb and the use of oxen carts to haul cargo. Contemporary accounts from the mid-1800s describe the road as critical to Torbert's farming operations, and it later appears on historic maps into the early 20th century.

In addition to these larger historic thoroughfares, archaeological fieldwork has identified numerous traditional trails associated with transportation and intra-community movement across the project area. Within the designated preservation areas of Parcels S1/S3, M8/M9, and M10/M11, multiple precontact or early historic trails have been recorded (e.g., SIHP 1976, 1979, 7282, M10-10, M8-4). These trails are part of a broad landscape that also includes agricultural terraces, habitation enclosures, ceremonial features, and boundary walls. Their presence attests to the well-established indigenous land use systems that integrated mobility, subsistence, and spiritual practice across the diverse terrain of Honuaʻula.

Together, these traditional and historic trail features underscore the project area's significance as a nexus of cultural activity, both in the precontact period and during the transformative era of the Hawaiian Kingdom. Their preservation and interpretation provide valuable opportunities for understanding and honoring the rich human history of this region.

6.3.1 Nā Ala Hele, Alaloa me Alanui Aupuni: Traditional Byways, Regional Trails, and The Government Road System

Few communications were located in the Kingdom collections of the HSA, which described road work in the Honuaʻula moku. On August 1 and 8, 1834, two letters from Rev. John S. Green were published in the Hawaiian language newspaper, *Ka Lama Hawaii*, of the mission station. Green reported that he traveled through Honuaʻula and Kula, observing that the people were very poor, and also reported on conditions of the

trails and roads in the district, which were being worked on under Governor Hoapilikāne. Green (1834) wrote:

> I hereby forward to you the report of my tour to Honua‘ula and Kula, and Hamakua loa and Hamakua poko, to preach the word of the Lord and to observe the work of the teachers and their students.
>
> Saturday, May 3, 1834. In the morning, I went to see the people living in the back country… the road to Kawailepolepo is good, needing perhaps just a little work… From Kawailepolepo, I went to Kaluaihakoko, there is no school there, but some people were gathered together to hear the gospel of Jesus… Afterwards, I then went to the uplands, to Kula. The road is a bad one, rocky and overgrown. It can be made good, and it is a good land, but there is not much food grown there at this time, perhaps because of the laziness of the people… (p. 2)

Of the government records found, most described work on the upper road—from Kalepolepo on the shore, to ‘Ulupalakua passing through Fredenberg and Wilcox grant lands; and the upper Honua‘ula-Makawao Road from ‘Ulupalakua running just mauka of Pu‘u ‘Io, crossing through the Wilcox and Fredenberg grants. By the 1850s, the old ala loa, or Government (Hoapili) Road, was apparently all but abandoned by the government roads program, in preference of maintaining the mauka routes. Native residents of the region continued use of the old makai route, even caring for it, through the 1900s. Government Road communications of interest in Honua‘ula include but are not limited to the following selections.

> **December 31, 1854**
> **S. Kapihe, Road Supervisor of the District of Makawao, Maui; to Keoni Ana, Minister of the Interior:**
>
> …Here is my report on Government Roads for the year ending the 31st day of December, 1854.
>
> Money received in cash, five, for office supplies, paper, ink, brush. Here is the number of persons who came to work, 787 men.
>
> 1. Repairing the old Government Road from Koolau to Paeahu, at Honuaula;
> 2. Repairing the old Government Road from Keawakapu to Kamaole, in Kula, Maui;
> 3. Repairing the old Government Road from Kalepolepo to Keokea, in Kula, Maui;
> 4. Repairing the old Government Road from Kalepolepo to Waiohuli, at Kula, Maui…

This is the amount of time taken for the above roads, 42 days work… (HSA, Interior Department Misc. Box 146)

The following article by W. Kealoha (1865, K. Maly, trans.) details how Governor William Hoapili caused the road to be built through Honua‘ula, but the road was in disrepair and seldom traveled by 1865:

Ka Moolelo o William Hoapili k. He Wahi Haiolelo keia na Kekahi Keiki o Lahainaluna, e Pili ana i ka Hoike Kula, i ka La 5 iho Nei o Mei.	**This is a Little Story from the Youth of Lahainaluna, from the School Exhibition of the 5th day of May, Instant.**
O Hoapili k. oia ke kau wahi pua-alii o keia Pae Moku i ka wa kahiko; no ka mea, he mau alii kona mau makua, o Kameeiamoku kona makuakane, a o kona makuahine; o Keliiokahekili no ia.	Hoapili k. was one the royal descendants of this Island Group of olden times; for his parents were chiefs, Kame‘eiamoku being his father, and his mother being Keliiokahekili.
Ua hanau ia o Hoapili ma Kailua i Hawaii, i ka makahiki 1775. Eha mau makahiki ia mamua iho o ko Kapena Kuke ku mua ana mai ma keia Pae Moku, a ma ka makahiki 1840 kona make ana…	Hoapili was born at Kailua, Hawaii in the year 1775, four years before the arrival of Captain Cook at these Islands, and he died in 1840…
Eia hoi kona noho Kiaaina ana no Maui nei. I ka pau ana o keia mau kaua eha, noho oia i Kiaaina no Maui nei, a oia no hoi ka mua o ka noho ana ma ia oihana. Ia wa nae, aole he Lunakanawai maoli, e like me keia wa a kakou e noho nei. Iaia wale no ka mana hoopai, a hookuu aku paha i ka mea i hewa a pono paha, ua noho oia ma kana oihana me ka oluolu.	Here is something about his residency as Governor on Maui. At the end of the fourth battle (of Kamehameha), he was established as Governor of Maui, and this was the first position of its kind. In that time there was not a true Judgeship as there is in this time of us who reside here. Only he had the power to punish or to free, perhaps, the transgressor. He held his office with goodness.
E noho ana ia ma kana oihana nui, hoomaka oia e hana i ke alanui mai Honuaula, a hiki i Kaupo, e pili ana ma kahakai, malalo iho o ke kakai mauna	It was while he held this position that he had construction of the road from Honua‘ula to Kaupō begun, running along the shore, and along the mountain

o Haleakala, ma keia alanui i hanaia, he nui na a-a-wai, he alanui maikai ia i ko Hoapili wa e holo ana, ma ia alanui na kanaka e hele ai, a i keia wa, aole hele nui na kanaka no ka inoino, kapaia mai keia “Ko Hoapili alanui.” Ko Hoapili huna ana i na iwi o Kamehameha. I ka makahiki 1819…	cliffs of Haleakalā. Along this road was many stony beds, and it was a good road when Hoapili traveled it. Along this road, many people traveled, but in this time, there are not many people who travel it, for it is in disrepair. It is called, “Hoapili’s Road.” It was Hoapili who hid the bones of Kamehameha in 1819…
W. KEALOHA.	W. Kealoha

The occurrence and use of ala hele (trails), ala loa (ancient island trails), and Alanui Aupuni (Government Roads) were important resources through Makena.

6.4 Farming

The lands of the project area lie on the leeward slopes of Haleakalā and were integral to the agricultural traditions and sustenance of Native Hawaiian communities (see **Section 6.2** for additional discussion on habitation practices). The arid landscape, defined by its proximity to recent lava flows and relatively low annual rainfall, shaped the traditional farming methods in the region. Early Hawaiian agriculturalists developed ingenious systems for cultivating crops despite the dry conditions, relying on moisture-retaining techniques and the natural topography to sustain their fields.

One of the most notable farming techniques employed in Mākena was dryland agriculture, particularly the cultivation of ‘uala and other hardy crops. These were planted in the lower uplands above the primary residential areas, utilizing the morning dew (kēhau) and occasional rains to sustain growth. This form of agriculture was common throughout leeward Maui and reflected the adaptability of Hawaiian farmers to their environment. The kula lands were also used for seasonal planting, where scattered agricultural fields provided additional sustenance.

In addition to ‘uala, other crops included dry taro, wauke (paper mulberry), and various medicinal and fiber plants such as pōpolo (glossy nightshade), niu, kō (sugarcane), hala, olena (turmeric), and limu. The presence of wiliwili trees and neneleau (*Rhus sandwicensis*) in Honua‘ula indicates a once-thriving native ecosystem that supported both agricultural and cultural practices. Farmers also engaged in agroforestry, incorporating tree crops that could thrive in the uplands and coastal zones.

Since poi was the staple food for Native Hawaiians, it was of the utmost priority for the first settlers to establish lo‘i (irrigated terraces). Kalo’s prominence in the Hawaiian diet

derived from its nutritional value, but even more so from its mythological significance. According to Hawaiian traditions, the first human (male) was born from the taro plant:

> The first born son of Wakea and Papa was of premature birth and was given the name Haloa-naka. The little thing died, however, and its body was buried in the ground at one end of the house. After a while, a taro plant shot up from the child's body, the leaf of which was named lau-kapa-lili, quivering leaf; but the steam was given the name Haloa.
>
> After that another child was born to them, whom they called Haloa, from the stalk of the taro. He is the progenitor of all the peoples of the earth. (Malo, 1951, p. 244)

Handy et al. (1972) describe Honuaʻula:

> Despite two recent lava flows which erupted in about 1750 from fissures below the crater and only a few miles inland and which covered many square miles of land, the eastern and coastal portion of Honuaʻula was thicky populated by Hawaiian planters until recent years. A number of Hawaiian families whose men are employed at ʻUlupalakua Ranch have homes near the ranch house. About these native homes a little dry taro is cultivated. Formerly there was much dry taro in the forest zone. (p. 509)

Agricultural practices in Honuaʻula demonstrated ingenious adaptations to the local environment. The report documents various agricultural features including mounds, terraces, and walled fields that were used for cultivating ʻuala, maiʻa (banana), kō, and other crops. In areas with suitable soil depth, more intensive cultivation was possible, while rocky terrain was utilized for specific crops that could thrive in such conditions. The distribution of these agricultural features across the landscape reveals a sophisticated understanding of microenvironments and soil conditions (Maly & Maly, 2005, p. 9).

Traditional farmers also practiced various techniques to maximize productivity in an arid environment. These included mulching with stone to preserve soil moisture, creating windbreaks to protect crops, and timing plantings to coincide with seasonal rainfall patterns. Agricultural practices were guided by intimate knowledge of local weather patterns, including recognition of specific cloud formations that signaled changing conditions (Maly & Maly, 2005, p. 10).

The presence of deep planting pits, where soil was transported from more fertile regions to enable cultivation, further underscores the ingenuity of traditional Hawaiian farming practices. In these pits, crops such as kalo and kō were grown, with soil amendments helping retain nutrients and moisture in otherwise inhospitable landscapes.

Beyond staple food crops, farming in Honua‘ula was closely tied to broader social and economic systems. Hawaiians engaged in a reciprocal trade network, exchanging dryland crops with communities in wetter regions for taro and other water-intensive produce. This exchange ensured a balanced diet and reinforced inter-district relationships. Additionally, agricultural production supported the ali‘i system, with designated konohiki overseeing land management and resource distribution.

The land management system was structured within the ahupua‘a framework, ensuring access to both mountain and ocean resources. This allowed farmers to supplement their diets with fish and marine resources, complementing their cultivated foods. Fishing and farming were often practiced in tandem, with families maintaining both agricultural plots and coastal fishing grounds.

Spirituality and agriculture were deeply interconnected in traditional Hawaiian life. Temples and shrines dedicated to rain deities and agricultural fertility were common in the region. One such heiau, Po-kalani, located in the uplands of Pu‘u Ke‘eke‘ehia-Pu‘u Ka‘eo, was associated with ceremonies aimed at procuring rain. Agricultural rituals and offerings were made to ensure bountiful harvests, and knowledge of planting and harvesting cycles was preserved through oral tradition.

The introduction of cattle in the 19th century significantly altered the agricultural landscape of Honua‘ula. As cattle ranching expanded, traditional farming areas were reduced, and many native agricultural practices were disrupted. The introduction of non-native grasses and the trampling of cultivated lands by livestock led to changes in land use patterns, shifting the focus from subsistence agriculture to ranching and commercial enterprise.

Despite these transformations, elements of traditional farming practices persisted. Some Hawaiian families continued to cultivate ‘uala and dry taro in the uplands, adapting their methods to coexist with ranching activities. Oral histories and archival records document the resilience of native agriculturalists, who maintained their knowledge of planting cycles and sustainable land management even as economic and environmental pressures mounted.

In the present day, there is growing interest in restoring traditional agricultural practices in Honua‘ula. Efforts to revitalize Hawaiian farming methods emphasize sustainability, water conservation, and the reintroduction of native plants. By integrating modern ecological knowledge with traditional practices, contemporary farmers and cultural practitioners aim to restore the balance between land and people, honoring the agricultural legacy of the Honua‘ula region.

The history of farming in Honua‘ula reflects the deep knowledge and resourcefulness of Native Hawaiians in managing their land. From dryland farming techniques to inter-island trade networks, these practices sustained generations of residents and reinforced the cultural and spiritual connections between people and place. While colonial disruptions altered traditional land use, the persistence of Hawaiian agricultural knowledge continues to inform efforts to reclaim and revitalize these landscapes today.

6.5 Traditional Clothing (Clothes Making, Dyeing, and Lei Making)

Kapa (commonly known as barkcloth) was the traditional material made through a traditional method of gathering, treating, and beating plant fibers, often, but not limited to, wauke (*Broussonetia papyrifera*) to make fabric that was used to make lole (clothing). Pacific and Hawaiian kapa was known for its wide range of colors and the application of watermarks.

Furer (1981) describes the process for making kapa:

> The finest kapa came from the paper of the mulberry tree. These trees were cultivated on plantations and grew to heights of more than twelve feet. As the tree grew, the branches were nipped off along the main trunk, ensuring a long piece of bark which was easily peeled from the tree.
>
> The manufacture of kapa was an important occupation for women. After the bark had been peeled from the tree, the inner bark was separated and soaked in sea water to make it soft and pulpy. The softened bark was placed on an anvil and beaten with a cylindrical wooden beater. The first beating separated the fibers and produced strips about eight or nine feet long and ten to fourteen inches wide. These strips could be dried and stored until needed. When needed, the strips were soaked in water, placed in layers between banana leaves, and left for about ten days to mature by "retting" which is the decomposition and removal of softened tissues, leaving the finer fibers. These partially decomposed layered strips were beaten a second time with specially carved four-sided beaters. The patterns carved on the beaters were functional as they produced the necessary characteristics in the kapa for its end use. These carved designs left the equivalent of a watermark on the kapa.
>
> Kapa which was to be extremely soft and pliable, such as that used for the malo or loincloth, was subjected to an additional softening process. This process, which produced a finely ribbed fabric, was done by dampening the cloth, stretching it over a grooved board, and running a wooden grooving tool along the indentations in the board. When the cloth dried, permanent ribs remained. The hand was very similar to our crinkle gauze of today. (pp. 109-110)

Hawaiians were skilled at utilizing plants and materials to dye their clothing and other materials. Different methods would be employed to hō‘awa, extract dye colors from their source material(s). These dyes would be placed in a cup, known as a kā kāpala. Even foreign or exotic plants were utilized for this practice. Hawaiians used different words for the various types of dyeing activities and methods.

- Hili – bark dye, as hili kukui, hili kōlea, hili noni; also kapa dyed with bark or the name for dyeing with the use of bark
- Hōlei –native tree (*Ochorosia compta*) related to the hao (*Rauvolfia*), which yields a yellow dye for kapa
- Kīhe‘ahe‘a pala‘ā – dye made from the pala‘ā (Sphenomeria chinensis syn. chusana) fern; pala‘ā also references a kapa made from the māmaki (*Pipturus spp.*) bark which is then dyed a brownish-red with pala‘ā fern
- Ki‘olena – to dye kapa
- Kūhili – to dye (or stain) by soaking in water containing mashed bark, such as used for nets; also mulberry bark before it is beat into kapa
- Kūpenu – to dye by dipping material
- We‘a – a red dye or to print or dye red

Hawaiians also had a lexicon for the various colors that could be achieved through this traditional practice.

- ‘Ākala – color made from raspberry or thimbleberry juice
- Hili – Dark-brown dye made from bark
- Nao – dark red
- ‘Ōlenalena – yellow
- ‘Ōma‘oma‘o – light green color made from ma‘o leaves
- Pōkohukohu – color made from the noni (*Morinda citrifolia*) root
- Puakai – red

Similarly, lei making was a regular occurrence in traditional Hawaii. Anderson-Fung and Maly (2009) write about the traditional practice:

> In old Hawai‘i, lei could have important ceremonial functions, such as in religious offerings and for chiefly regalia, but lei were also enjoyed as personal adornment by Hawaiians of all levels of society. The ali‘i (chiefs) and the maka‘ainäna (the common people who tended the land) all wore lei. Even the akua (gods, deities, spirits), it was believed, sometimes wore lei when they walked the land in human form. The following observation by the French botanist Gaudichaud, who visited the islands in 1819, paints a picture of Hawai‘i as a place where the lei was an integral part of everyday life:

> "It is indeed rare to encounter one of the natives of this archipelago who does not have an ornamental plant on his head or neck or some other part of his body…[The] women … change [the plants they wear] according to the seasons, [and for them] all the fragrant plants, all flowers, and even the colored fruits, serve as attire, one after another. …The young girls of the people, those of the island of Hawai'i especially, seem to be fond of the [kou, Cordia subcordata], a tree very abundant in all the cultivated areas… The young girls of the mountains, who live near the forests, give their preference to the flowers of the [Erythrina (wiliwili) and a species of Canavalia, called 'awikiwiki], the lively color of which makes magnificent garlands. Such natural attire is much more rich, much more striking, than all the dazzling creations of the elegant European ladies."
>
> This account and others like it suggest that lei worn for personal adornment were fashioned from the favorite plant materials that were readily available and abundant in the lei maker's environment. (p. 4)

Lei making continues as an important practice today, as the making and giving of lei as an expression of aloha to loved ones still regularly occurs throughout the Hawaiian Islands. Practitioners of these crafts actively practice in the Kula and Honua'ula moku, although there is no indicator that the project area is currently used for any of these practices.

6.6 Lā'au Lapa'au

Lā'au lapa'au is the practice of traditional Hawaiian medicine. For centuries, Native Hawaiians relied upon the environment around them to provide them medicine. It is still actively taught and practiced today. Medicinal experts or healers have intimate knowledge about plants and other resources to cure ailments illnesses and sicknesses. Traditional medicine is practiced by native peoples and local communities around the world. Similarly, Native Hawaiians, over many generations, have learned how to properly care for, utilize, and prepare plants to maintain the community's health.

In addition to plant access, it was also important to ensure that these plants were healthy and in good condition. These cultural resources are critical to the ongoing practice of traditional medicine and healing within the Native Hawaiian community. There are still many traditional medicine practitioners in the Hawaiian community and throughout the Hawaiian Islands today.; this practice continues to be taught to the younger generation and is honored and utilized in many Hawaiian households throughout the state.

It was important that medicinal plants existed throughout the Hawaiian Islands so that when people traveled throughout different places on in the islands, they would always

have access to the medicine they needed. In some cases, some plants were extremely rare, and, in those cases, it was particularly important to make sure that these populations were well protected and well cared for. An identification of plants of cultural value for medicinal purposes that grow naturally within the project area is included in **Section 4.2.1 (Flora).** There were also numerous gods associated with health, healing, and medicine: Hiʻiakaikapoliopele, Hiʻiakaikapuaʻenaʻena, Hauwahine, Hina, Hinaʻea, Hinalaulimukala, Kamakanuiʻahuʻilono, Kanaloa, Kū, Kūkeoloʻewa, Lonopūhā, Maʻiola, Mauliola, and ʻŌpeluhuikauhaʻailo.

Maui has an active community of healing practitioners. These practitioners actively practice in the Kula and Honuaʻula moku, although there is no indicator that the project area is currently used for any of these practices. It is possible that abundant native plants like ʻuhaloa may be used medicinally, as this plant is abundant and distributed widely throughout the area.

6.7 Kilo

Kilo "references a Hawaiian observation approach which includes watching or observing [the] environment and resources by listening to the subtleties of place to help guide decisions for management and pono practices" (ʻAuamo, 2016). The practice of kilo is seeing a resurgence in the Hawaiian Islands.

Kilo hōkū are traditional astronomers, or those who study the stars. Hale kilo or hale kilo hōkū are observatories or star observatories, respectfully. Kilo makani are those who traditionally observe the winds. Kilo moana were traditionally oceanographers. Kilo ʻuhane were those who observed and communicated with spirits.

Traditionally the practice of kilo was critical to the management of traditional Hawaiian landscapes. This practice is very closely tied to traditional or customary access as observers would require access to specific vistas, viewsheds, or areas in order to observe environmental phenomenon.

As illustrated in the proceeding section, Native Hawaiians created a wide range of terms for the environment and understanding the ecosystems around them. These terms were often quite specific, and many were tied closely to a specific geographic area. This level of specificity illustrated the close kinship Hawaiians shared to their surrounding environment. The ability to observe and understand all elements of their ecosystem was essential to both the successful care of natural resources and the survival of the Hawaiian people.

The ability to effectively and accurately read weather phenomena was essential to the ability of Hawaiian people who farm, fish, navigate, and conduct any number of practices

in a sustainable and successful manner. The knowledge Hawaiians acquired about their environment around them, including weather phenomena, was the result of multi-generational observations that comprised an extensive body of information passed down through oral traditions. The following Hawaiians names and their descriptions of weather phenomena include words for clouds, rains, and winds that are utilized by kilo to help guide activities and practices:

- Ānuenue – rainbow, a favorable omen.
- Ao akua – godly cloud, figurative representative of a rainbow.
- Ao loa – long cloud or high, distant cloud. Status cloud along the horizon.
- Ao ʻōnohi – cloud with rainbow, ʻōnohi, colors contained within it.
- Ao pehupehu – continually growing cumulus typical of summer. Drifting with the tradewinds, these clouds pick up moisture and darken at their base, finally releasing their rain on the windward mountain cliffs.
- Ao puaʻa – cumulus clouds of various sizes piled together, like a mother pig with piglets clustered around her. The Kona coast is famous for ao puaʻa, a sign of good weather and no impending storms.
- Hoʻomalumalu – sheltering cloud.
- Hoʻoweliweli – threatening cloud.
- Ua loa – extended rainstorm.
- Ua poko – short rain spell.

There are numerous points identified in **Section 3.1**. These points would have been traditionally used by kilo iʻa, skilled ocean observers who would identify marine resources for gathering. These locations for kilo are typically located in nearshore coastal areas from elevations along the shoreline where schools of fish can be observed.

6.8 Ceremonial Practices

Ceremonial practices played an integral role in the lives of Honuaʻula's residents. Numerous heiau and shrines were established throughout the region, serving as places of worship, agricultural ceremonies, and navigational landmarks. One notable heiau, Po-kalani, was located in the uplands of Puʻu Keʻekeʻehia-Puʻu Kaʻeo and was associated with rainmaking rituals (as stated previously in **Section 6.4: Farming**).

The presence of these religious sites underscores the deep connection between the Hawaiian people and their environment. Spiritual observances were woven into daily life, influencing agricultural practices, fishing expeditions, and social structures. The loss of traditional place-based knowledge due to Western contact and missionary influence led to the gradual abandonment of many cultural sites, though efforts to preserve and revitalize these traditions continue today.

The ceremonial practices of traditional Hawaiians are extensive. Throughout the course of Hawai‘i’s history, traditional Hawaiians have integrated religious, spiritual, and ceremonial practices in their daily lifestyle. Traditional or customary practices are then not distinct ceremonial practices but rather a part of their way of life. Therefore, it is challenging to define in discrete terms ceremonial practices associated with traditional Hawaiian customs. For the purpose of this section, the ceremonial practices discussed here focus primarily on customs carried out by general populations of Hawaiians, as opposed to activities or rituals carried out by trained and recognized specialists, kahuna.

Ceremonial practices are incorporated throughout numerous, if not all, of the activities identified in this section. For example, there is a great level of ceremonial practice and ritual associated with the care of the dead, burial remains, and funerary objects. Native Hawaiians as with most Indigenous peoples integrated ceremony into most of their practices especially those that occurred out in the natural landscape or related to their way of life. There was no specific site or materials required for ceremony *per se*.

Nonetheless, shrines were sometimes associated with ceremonial practices. Shrines for the purpose of this assessment are distinct from heiau, which were places of worship. The distinction is the natural context in which these features or sites were created. Heiau required the advice and guidance of a kahuna, who would help ali‘i determine the best location in which to erect a heiau. Conversely, shrines were erected by maka‘āinana as part of their daily or occupational functions.

Makahiki is one example of a practice that has taken place prior to contact and continues post-contact and involves ceremonial elements. One of these elements is the akua loa, described by Malo (1951) as “the image of the Makahiki god, Lono-makua … This work was called ku-i-ke-pa-a” (p. 143). Further described by Malo (1951):

> 22. This Makahiki idol was a stick of wood having a circumference of about ten inches and a length of about two fathoms. In form, it was straight and staff-like, with joints carved at intervals and resembling a horse’s leg; and it had a figure carved at its upper end.
>
> 23. A cross piece was tied to the neck of this figure, and to this cross piece, kea, were bound pieces of the edible pala[20] fern. From each end of this cross piece were hung feather lei that fluttered about, also feather imitations of the ka‘upu bird[21], from which all the flesh and solid parts had been removed.

[20] Native fern (*Marattia douglasii)* used for medicinal purposes as well as in ceremony.
[21] Laysan albatross (*Diomedea immutabilis*), written with diacritical markings as ka‘upu.

> 24. The image was also decorated with a white tapa cloth made from wauke kakahi[22], such as was grown at Kululi[23]. … One end of this tapa was pasted? to the cross piece, from which it hung down in one piece to a length greater than that of the pole. The width of this tapa was the same as the length of the cross piece, about sixteen feet.
>
> 25. The work of fabricating this image, I say, was called kuikepaa. The following night the chiefs and people bore the image in grand procession, and anointed it with cocoanut [sic] oil. Such was the making of the Makahiki god. It was called Lono-makua (father Lono), also the akua loa. This name was given it because it made the circuit of the land. (pp. 144-145)

The akua loa was taken to each ahupua‘a. This custom was important to the care, stewardship, and worship of the gods. These practices were intimately tied to the proper care and sustainable stewardship of all cultural and natural resources. The ethnographic data identifies that Makahiki ceremonies are still conducted along the coastline makai of the project area.

As with many concepts of traditional Hawaiian living and practices, the contemporaneous concept of the kahuna has been largely influenced by Western thought. The roles and responsibilities of the kahuna are well explained by Professor Terry Kanalu Young (1998):

> As recipients of hana lawelawe[24], the Ali‘i Nui were themselves serves of a sort. They were responsible for maintaining a positive spiritual relationship with the Akua through pono conduct. Pono was defined for individuals of that era within the context of a particular task specialty. Kahuna who functioned as experts in specific skill areas like medicinal healing, canoe building, or spiritual advising were consulted by leaders. The experts were looked to as responses for what was considered pono in their respective realms of knowledge. (p. 74)

Kahuna were critical to traditional Hawaiian lifeways as their extensive expertise helped to provide sound and strategic advice to ali‘i and other leaders on proper spiritual, cultural, and ecological management. There are numerous types of kahuna in Hawaiian traditions, including, but not limited to:

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[22] Meaning outstanding or of high quality, as in reference to the white kapa (tapa) made from these fibers.

[23] Likely a reference to the place in Pelekunu Valley at Kamalō, Moloka‘i, located between the peaks of Kaunuohua and Pēpē‘ōpae.

[24] Hana lawelawe are defined by Young as “service tasks” by which kaukau ali‘i (lower ranked chiefs) served the Ali‘i Nui (high chiefs). These hana lawelawe were critical to the ability of the Ali‘i Nui to effectively govern (Young, 1998).

- kahuna ʻanāʻanā – sorcerer who practices black magic and counter sorcery.
- kahuna aʻo – teaching preacher, minister, sorcerer.
- kahuna hāhā – an expert who diagnoses, as sickness or pain, by feeling the body.
- kahuna haʻiʻōlelo – preacher, especially an itinerant preacher.
- kahuna hoʻohāpai keiki – medical expert who induced pregnancy.
- kahuna hoʻopiʻopiʻo – malevolent sorcerer, as one who inflicts illness by gesture.
- kahuna hoʻoulu ʻai – agricultural expert.
- kahuna hoʻoulu lāhui – priest who increased population by praying for pregnancy.
- kahuna hui – a priest who functioned in ceremonies for the deification of a king.
- kahuna kālai – carving expert, sculptor.
- kahuna kālai waʻa – canoe builder.
- kahuna kiʻi – caretaker of images, who wrapped, oiled, and stored them, and carried them into battle ahead of the chief.
- kahuna kilokilo – priest or expert who observed the skies for omens.
- kahuna lapaʻau – medical doctor, medical practitioner, healer. *Lit.*, curing expert.
- kahuna makani – a priest who induced spirits to possess a patient so that he might then drive the spirits out.
- kahuna nui – high priest and councilor to a high chief; office of councilor.
- kahuna poʻo – high priest.
- kahuna pule – preacher, pastor, minister, parson, priest. clergyman. *Lit.*, prayer expert.
- kahuna pule kaʻahele – preacher.
- kahuna pule wahine – priestess.



Figure 8. Sunset from Mākena (over Kahoʻolawe) (iStock, 2019)

Due to its proximity to neighboring islands, like Kahoʻolawe, South Maui is well positioned for a wide range of ceremonies. There are also stories of kiʻi (image, petroglyph) within the larger region, although mauka of the project area. Handy et al. (1972) recount a story of a Lono Kiʻi (Lono Image) from in a spring in the uplands. It is also said that Huakaʻioka Po (night marchers) were also known to travel through the area (Handy et al. 1972, p. 512).

6.9 Haku Mele, Haku Oli, and Hula

This practice is related to the composition of songs and chants, and is a practice that has existed for many centuries in the Hawaiian culture. Since the Hawaiian culture primarily relied on an oral tradition to pass on knowledge and information, the ability to create songs and chants was essential to pass information from one generation to the next. Hawaiians had hundreds of terms associated with this practice.

Songs and chants are largely influenced by the environment around them. As a pedagogical device it was important, if not imperative, that these songs or chants effectively captured data from the environment around the composer and passed on this information for others to utilize when managing natural resources. In a very real sense, the land and natural resources act as a muse for composers. The category of songs that provide information on or speak to natural resources are called mele ʻāina (songs of the land). As shown in **Section 4.3.2. (Mele)**, there are several traditional chants and songs about the project area and its surrounding landscape.

Much like mele and oli, hula serves as a way of both honoring place and telling the story of place. Many hula, especially those based on mele ʻāina, require intimate understanding of the place where the mele was composed, including the natural elements of that ʻāina. Hula hālau will regularly take huakaʻi, or journeys, to visit and honor the place a particular mele speaks of. The ability to visit the place and learn about it is important to the practice of hula.

Hula, as well as mele or oli, are also offered as gifts to kupuna or akua. This practice also requires access to traditional sites. Associated with hula would have been the practices of lei making and the use of plants to dye clothing.

6.10 Ranching and Paniolo Culture

The Hawaiian paniolo were the first cowboys in the United States. As previously explained in **Section 3.3.2**, Captain George Vancouver first brought cattle to Kamehameha as a gift shortly after Kamehameha unified the Hawaiian Kingdom under his rule in 1793. This was the introduction of ranching to the islands. In order to grow the population so Hawaiians could export cattle and use them throughout the islands, Kamehameha first put a kapu

on the cattle. The cattle grew sharply in numbers, and soon large numbers of cattle were roaming wild throughout Hawaii Islands (Harrington, 2019).

To get the growing population of cattle under control, Kamehameha brought the vaqueros from Mexico, who had the expertise to manage the cattle with horses. Hawaiians could not initially pronounce the term vaqueros, so they would attempt to use the term “españoles” (Spanish speaking males) instead. Unable to pronounce this properly, the term “paniolo” was created.

Horses would be landed on both Hawai‘i Island and Maui Island. They were gifts to John Young, one of Kamehameha I’s close advisors. The introduction of horses had a transformative effect on Hawaiian society. Before the arrival of horses, Hawaiians primarily traveled by foot or by canoe. The use of horses revolutionized transportation and warfare, allowing faster and more efficient movement across the islands.

Lyons’ (1892) publication from the Papers of the Hawaiian Historical Society explains about Spanish influence in Hawai‘i:

> [The Mexican Hispano-Indian] was called by the Hawaiian, specifically, Huanu, Hoke, Hoakina, etc. these names of course meaning Jean, Jose, Joachin, etc. He had with him sometimes full-blooded Indians of Mexican origin, who I say in my boyhood. He was called generically “Paniolo” or “Espangnol,” the word that now-a-days means “cow-boy.” He brought with him the Mexican saddle in all its rich adornment of stamped bull-hide leather, and stirrups broad-winged. He brought the jingling spur with bells of hand-wrought steel. He brought the hair-rope in strands of alternative black and white, and the hand-whirled wheel for twisting it; also the hand-wrought bit, not so crude as it looked to be, and a necessity in bullock-hunting. All this away back in the [eighteen] thirties, long before the birth of the modern cow-boy. Do not I remember him well, this Spaniard, the red bandanna handkerchief tied over his head under the broad flapping hat with rim up-turned in front? Did not the scrape – poncho we always called it, and the name much have come from South American – commend itself to our common sense as a defence (sic) from rain? We adopted it, and the red silk sash in the bargain, and the leggins not buttoned. Last but not least, the lasso or lariat, braided evenly and lovingly from four strands of well-chosen hide, then well-stretched and oiled, coiled in the same left hand, that with the little and third finger held the finely braided bridle rein; (Mexican too this was, and Mexican the causing of the rein to bear on the horse’s neck, instead of to pull on the mouth). (p. 26)

Hawaiians took the lessons and teachings from their Spanish and Mexican instructors and created their own traditions revolving around cattle and horses. Hawaiian paniolo are considered to be some of the best ranchers and cowboys in the world. Hawaiian paniolo

like Ikua Purdy became world-famous for competing in rodeo competitions in the United States, and the skill and craftsmanship of paniolo has been noted throughout history. In places like Makawao, paniolo culture and practices are still actively practiced today.



Figure 9. “Typical Hawaiian Cowboys” (HSA, Paniolo Collection, PP-13-6-015, n.d.)

The paniolo are regarded with great esteem. While they were not intended to remain in the islands, marriages between the paniolo and local population resulted in Hawaiian paniolo. The cowboy lifestyle became a way of life. They were considered particularly masculine, and historic record and songs reflect this (M. Sproat, per. comm. 2021). As horses spread throughout the islands, they were introduced to South Maui as well. The fertile lands and open spaces in the region made it conducive to raising and keeping horses. The availability of horses allowed for easier communication and trade between South Maui and other parts of the island.

Horses played a crucial role in agriculture and ranching on South Maui. They were used for plowing fields, transporting goods, and herding cattle on ranches. The emergence of

paniolo culture in the 19th century further solidified the significance of horses in South Maui's agricultural and ranching practices. Paniolo culture, which blends traditional Hawaiian practices with the horsemanship and cattle-handling techniques brought by Mexican vaqueros, thrived in South Maui. Skilled paniolo were essential for managing the expanding cattle industry on the island.

The Paniolo are a distinct cultural group, or folk society, with origins to numerous ethnic groups including Mexicans, Hawaiians, Portuguese, and others (Mills et al., 2013). Records show that ranching and the Paniolo utilized the project area and geographic extent significantly. (See Paniolo Hall of Fame Oral History Interviews, O'ahu Cattlemen's Association.) In this region, these Paniolo were largely of Native Hawaiian descent, and they integrated not only Hawaiian practices learned from their families, but Hawaiian words and language into their practices as Paniolo.



Figure 10. Paniolo Rounding up Cattle on Haleakala Ranch (n.d.)

The vaqueros also brought the Spanish guitar with them. It is through this introduction that slack key music was also born. It is said that slack key music originated from Mexicans leaving their guitars with local Hawaiians, who would "slack the keys" because they did not know the proper way to tune the guitars, creating a new form of tuning that

originated in the islands. For many decades, “slack key” music grew and was perpetuated within the Paniolo community.

There are also numerous songs written for and by the Paniolo. National Heritage Fellow Clyde “Kindy” Sproat traveled to the Smithsonian Folklife Festival in 1989 to share mele and moʻolelo about the paniolo, slack key music, and falsetto singing. At that festival, when sharing the song “Adios Ke Aloha” by Prince Leleiohoku, the younger brother to King Kalākaua and Queen Liliʻuokalani, Sproat said:

> “Adios Ke Aloha” was written by Prince Leleiōhoku, and he wrote this in honor of the Mexicans that came to teach the cowboys how to rope and ride and all of that. That is my heritage, believe it or not. One of my great-grandfathers was one of those Mexicans that came to teach the Hawaiians how to rope and ride. (Harrington, 2019)

Hawaiʻi Island is known for being the origin of Hawaiʻi’s Paniolo culture, but there are numerous rodeos held on Maui and this way of life is still practiced today.

The project area has been particularly influenced by paniolo culture, as the area was previously managed by Ulupalakua Ranch.



Figure 11. Ulupalakua Ranch (HSA, Reference PNL-68-02055, n.d.)



Figure 12. Ulupalakua Paniolo Working in the Coastal Waters off of South Maui (Ulupalakua Ranch, n.d.)



Figure 13. Tools Used by Paniolo to Create Wire Fences (Honua Consulting, 2022)

Paniolo worked throughout the ahupua‘a, from the mauka lands where the ranch was based, to the ocean. They were responsible for managing the fences that allowed the cattle to graze through the entire lands managed by the ranch. Cattle would be allowed to roam and graze in a particular area, and then they had eaten down the grass and vegetation, the Paniolo would move them to the next pasture.

Building and maintaining fences was an essential part of a cowboy’s job. Paniolo needed to work fast and effectively in order to keep cattle managed and within the ranch’s lands. These extensive ranch walls can be seen throughout the entire upcountry region. Some ranch walls are still present within the project area.



Figure 14. Paniolo Displaying Different Types of Barbed Wire Used for Ranching (Honua Consulting, 2022)

6.10.1 Pāʻū Riders

When Captain Richard J. Cleveland introduced horses to Hawaiʻi in 1803, Hawaiian men and women took to horse riding, starting the equestrian traditions in the islands. The Westerners that were demonstrating how to ride horses were all male, so Hawaiian women joined the men in learning to ride horses astride rather than sidesaddle. Women wore long skirts (pāʻū) to protect their legs or their nice clothes while traveling on horseback. Aliʻi wāhine (female rulers) often wore a pāʻū when they rode horses to dress up for an occasion. The pāʻū used for horse riding is made of nine to twelve yards of fabric that is wrapped so the skirt flows past the stirrups to the ground. The skirt is tied so that the women's legs are covered and protected like pants, while offering the elegance of the long train of skirt that flows from the riders' waist, over the horse, towards the ground. Traditionally, the pāʻū were twisted with kukui nuts and tucked into the waistband to secure the long fabric. Wāhine holo lio pāʻū (female pāʻū riders) also utilized foliage and lei making traditions to adorn themselves and their horses when they rode, making their rides a beautiful sight to behold.



Figure 15. Historic Photo of Pāʻū Riders from Makawao (M. Taylor Collection)

Over time, the tradition of pāʻū riding grew into displays and performances, and wāhine holo lio pāʻū became known as skilled and elegant horse riders. Pāʻū riding faced a

decline after the overthrow of the Hawaiian Kingdom, but it has since been revitalized and there are many wāhine holo lio pāʻū who still wear the traditional pāʻū today. In 1901, the then displaced Queen Liliʻuokalani rode from her home on Beretania Street into Waikīkī, escorted by a troupe of wāhine holo lio pāʻū who wore the traditional riding pāʻū for the journey. In 1906, Lizzie Puahi organized the Paʻu Rider's Club in Waikīkī. Soon after, other people with pāʻū knowledge, like Theresa Wilcox, started additional riding societies, reviving the unique tradition of pāʻū riding in Hawaiʻi. Today, pāʻū riding is alive and well, especially in places like Makawao where riders participate in rodeos and parades, showing off their beautiful traditions and their true elegance.



Figure 16. Pāʻū Riders in the 47th Annual Makawao Paniolo Parade[25] (Malia Bohlin, Malama o Maui, July 2012)

[25] Note how these riders incorporate traditional palaka print clothing, reflective of the paniolo culture.



Figure 17. Pāʻū Rider Turning onto Makawao Avenue During Paniolo Parade (Makawao Rodeo, 2018)

The following articles pulled from the Hawaiian language newspaper archives discuss female horse riders and the general rules or customs surrounding this tradition.

Ka Hoku o ka Pakipika
September 26, 1861 (page 3)

Mau Rula no na wahine holo Lio.	**Some Rules for Female Horse Riders.**
1. A i holo oe maluna o ka lio, mai holo oe me kou pau ole iwaena o ke kaona nei. He mea ino wale ia.	1. When you ride on your horse, do not ride without your skirt through the center of town. This is very unwholesome.
2. Mai kau wale oe i kou pau ma ke alo wale no, a koe kou lemu, me ka ike ia o kou mau oloolo wawae. He mea	2. Do not gird your skirt in the front only and leave your buttocks exposed so that you can see your calves. This is

hilahila loa ia, ke hele oe iwaena o ke akea.

extremely shameful, should you ride in public.

3. E hana mua oe i kou wahi papale a maikai, alaila e kau ae oe maluna o ka lio. E olelo mai auanei kahi poe ia oe, nou ke lai o ke ahiahi.

3. Put on your hat and make sure it looks nice and then climb aboard your horse. Soon some people will say that afternoon peace is yours.

4. Mai holo oe iwaena o ke kaona, me ka luhelelei i kou lauoho; e kahi mua oe i kou lauoho a maikai kau iho kahi papale, lawe mai hoi na wahi papahi lei ilima, alaila e i ia mai auanei oe, maikai wale, e lawe ana.

4. Do not ride through town with messy hair. You should brush your hair first until it looks nice, put on a hat, and bring some adornments of ‘ilima lei. Then you will be the best, truly fine, and ready to go.

5. Mai hoohaahaa i kou pau, aka, e hookiekie iki ae, i elua a ekolu paha iniha maluna o ka puhaka, e huki a pau ka alualu o kou pau, e hoomaloeloe mua oe ia lalo, e liki iho hoi oe a moliolio pono o hope.

5. Do not lower your skirt, rather, keep it high, perhaps two or three inches above the waist. Pull it until there are no wrinkles in your skirt; first you should make the bottom taunt, pulling it until the back is properly tight.

6. I kou holo ana, mai hina oe ihope, aole hoi e hio ma na aoao, aole no hoi e kulou imua, aka, e noho pono, me ka haka pono i kou mau maka imua. Alaila, e ike auanei kahi poe ia oe, a na lakou ia e hoopuka pokole ae i kau wahi mele pokole:

6. When you ride, you should not lean back, do not fall sideways, and do not bow forward, however, sit upright and set your eyes straight ahead. Then some people will just see you and they will quickly utter this short little song:

Holo mai oe, kilakila;
Noho mai oe, hanohano;
Ai ka manu ia luna,
Ka huila o Kapahukea,
E niniu nei i ka lai.

You ride this way with poise;
You sit dignified;
The birds are in the expanse above
The wheel of Kapahukea,
Spinning in the calm.

Oia ka mahalo a ka poe makaikai ke ike aku i ka maikai o kou holo ana mai.

This is a compliment from the spectators when they see how beautifully you ride.

(Aole i pau) W. K.*

(To be continued.) W.K.*

Ka Hoku o ka Pakipika

October 3, 1861 (page 3)

No na Wahine Holo Lio.	Concerning Female Horse Riders.
Mai holo oe maluna o ka lio me kou manao ana paha, e holo oe iwaena o ke kulanakauhale nei, me ke kau o ka paka kika i ka waha, a ipupaka maoli paha; he mea ino loa ia, a he mea hilahila loa no hoi iwaena o ka poe maikai. I ka hale no pau ke puhi ana o ka paka, ke kau ka maluna o ka lio hookahi no hana, o ka hana ia oe a mikioi, o ka lawe ae a aulii.	Do not ride upon your horse intending to perhaps ride through town with chewing tobacco in your mouth, or even within an actual tobacco pipe. This is very unwholesome, and extremely shameful among good people. You should finish smoking at the house; should you ride one horse for work, you should work to make it neat, undertaking it until it is exquisite.
I kou holo ana, mai manao oe, o ka hapuku wale mai no i ka lei a kaumaha ka ai, a me ke poo, he hana ia na ka pupule, hookahi no lei o ka wahine maikai.	When you ride do not decide to just hastefully gather lei so that your neck and head become heavy. This is what insane people do. Beautiful women should wear just one lei.
I holo oe iloko o ke kulanakauhale, mai holo mau loa oe iwaena o na alanui a pau, he mea pakua loa ia. I hookahi no holo ana o ke kulanakauhale nei, a puni no, alaila no hoi no i ka hele, o ka holo ana iho la no ia o ka wahine maikai.	When riding within town, do not continually ride through all of the streets; this is a very common practice. Ride through town just once and when you have circled town, then return home. This is how good women ride.
No koʻu ike ana iho, ua mahuahua iki iwaena o keia lahui kahi naauao i loaa mai mai na kumu a kakou, nolaila, ua hookomo iho au i keia mau rula i mea e hiki ai ia kakou ke hoomaopopo i ke ano o ka noho ana, a me na hana ana o ka naauao, a i mea hoi e hiki ai ia kakou ke hilahila i na hana o ka aoao naaupo.	Because I have noticed that some of the teachings received from our teachers have slightly increased among this nation, therefore, I have included these rules in order for us to be able to understand the way enlightened people live and work, and to allow us to shame acts of ignorance.
Naʻu, Elua**	Sincerely, Elua**

Ka Nupepa Kuokoa
April 26, 1901 (page 1)

E ukali ia ana ka Moiwahine Liliuokalani e kekahi mau wahine holo lio mai kona home noho ma ke Alanui Beretania a hiki i Waikiki hookahi pule mai ka la apopo aku. E holo ana lakou me na paʻu holo lio o ka wa kahiko. He luau ke hoomakaukau ia ana no lakou i ko lakou hiki ana ma Waikiki.

Queen Liliʻuokalani will be escorted by some female horse riders from her residence on Beretania Street to Waikīkī a week from tomorrow. They are going to ride in horse riding pāʻū from the days of old. There is a lūʻau being prepared for them upon their arrival in Waikīkī.

6.10.2 Rodeos

The Makawao Paniolo Parade and Rodeo is a long-standing tradition in Makawao that integrates traditional Hawaiian customs and practices with Western traditions. Paniolo have managed the cattle on the land since they were first introduced to Maui.

Rodeos have become a very important tradition within the paniolo culture and community. Paniolo like Archie Kaʻauʻa and Ikua Purdy proved themselves some of the best cowboys in the country when these two young Hawaiians competed in rodeos in the United States:

> One of the most illustrious paniolo in history, Ikua Purdy was born in 1873 at Waimea, Hawaii. He was the great-grandson of John Palmer Parker, founder of the famed Parker Ranch, and Kipikane, granddaughter of King Kamehameha The Great. He learned to ride and rope on the Parker Ranch and competed in roping events on the Big Island, Oʻahu, and Maui. Long before Mainland rodeos, Hawaiian paniolo rode the range and hunted wild cattle on the Big Island. Ten-year-old Purdy learned to rope wild bullocks. He and others practiced the clever method of taming unbroken horses in the ocean—the horses, in several feet of water, soon gave up trying to buck off their riders.
>
> Through the years, many paniolo proved themselves exceptional athletes, horse handlers and cattlemen. Three drew the attention of a wider audience when they competed in the 1908 Frontier Days celebration in Cheyenne, Wyoming, the top contest of the day. Eben “Rawhide Ben” Low, owner and manager of Puʻuwaʻawaʻa Ranch, attended Frontier Days in 1907 and knew his ranch hands could do better than the mainland cowboys. In 1908, he sent three of his top men – Ikua Purdy, Archie Kaʻauʻa (Eben’s half-brother) and Jack Low (Eben’s brother) – to the competition.

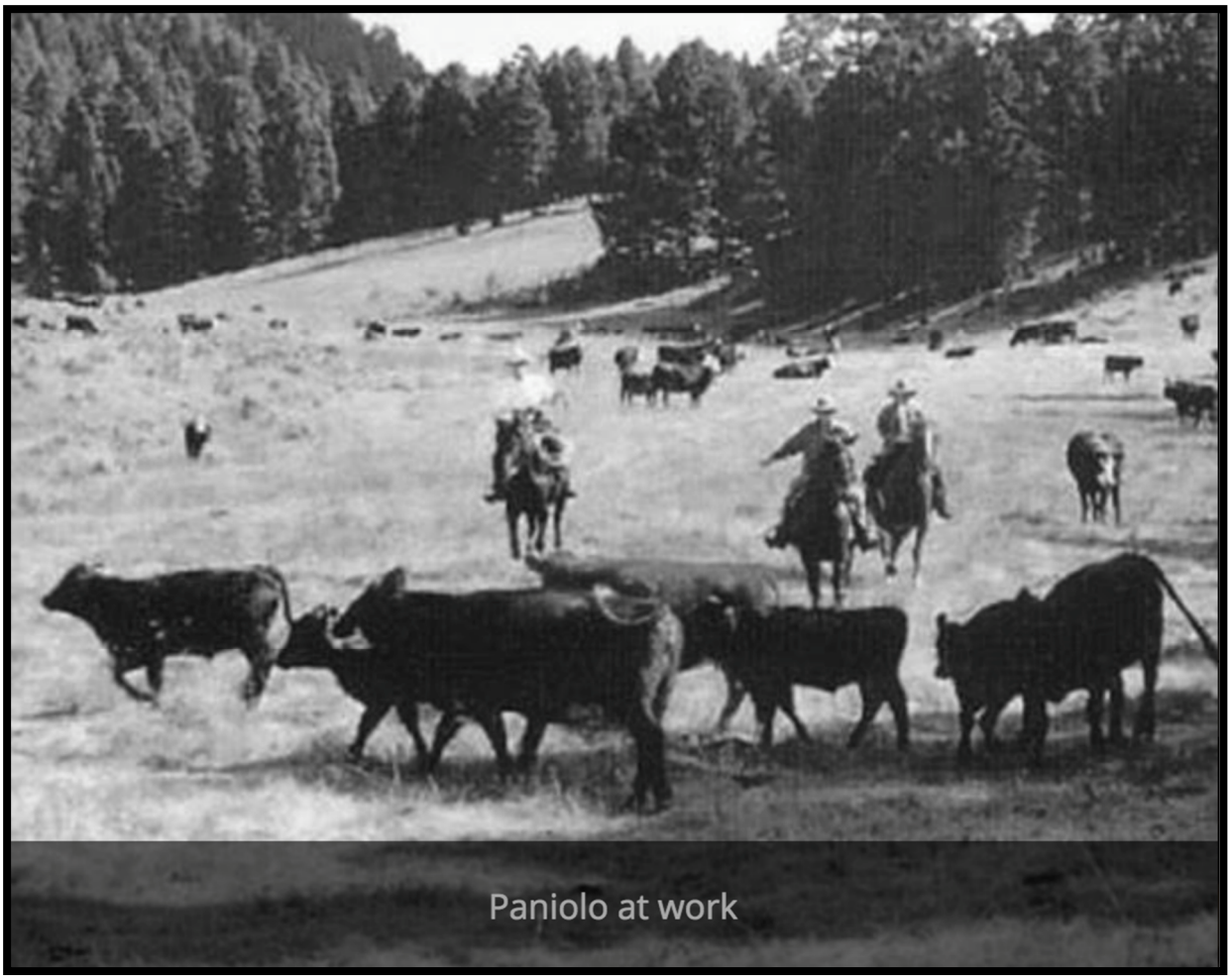

Figure 18. Historic Photo of Hawaiian Paniolo Herding Wild Cattle (Makawao Historical Museum)

By the time he was 20, Ikua Purdy was a master of the rope. In 1903, he and his paniolo friends participated in the first publicized cowboy competition recorded in Honolulu. Five years later, Purdy and other paniolos competed in the 1908 Frontier Days Rodeo in Cheyenne, Wyoming. The paniolo made a colorful entrance in Cheyenne, wearing their vaquero-inspired chaps and hats with flower lei. Headlines in Island and Wyoming newspapers in August of 1908 announced rodeo history. Twelve thousand spectators, a huge number for those days, watched Purdy, Kaʻauʻa, and Low carry off top awards at the world-famous Cheyenne Rodeo. Unlike today's calf-roping, riders lassoed powerful, full-grown steers. The Cheyenne paper reported that the performances of the dashing Hawaiians, in their vaquero-style clothing and flower-covered slouch hats, "took the breath of the American cowboys."

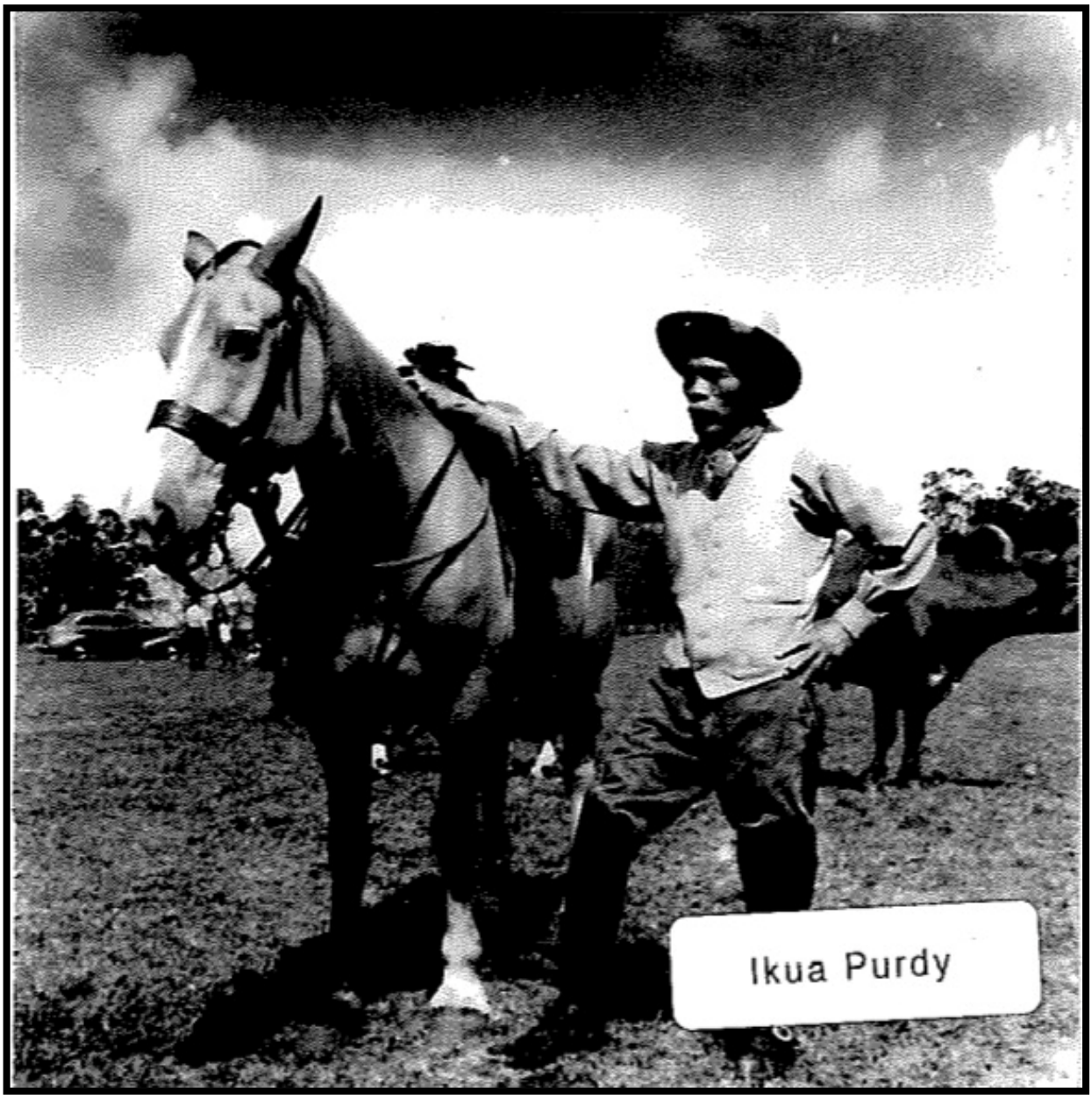

Figure 19. Famed ʻUlupalakua Paniolo Ikua Purdy (ʻUlupalakua Ranch, n.d.)

> They wowed the spectators with their performances too. Under drizzling skies, Purdy won the World's Steer Roping Championship—roping, throwing, and tying the steer in 56 seconds flat. Kaʻauʻa came in second and Low placed sixth. On arriving home, the men were met at dockside by thousands of cheering fans and also honored by parades and other festivities on Maui and Hawaiʻi. The Islands have produced other rodeo greats, including Sebastian Reiny, who could ride backwards while roping a running bull. But the three paniolo who swept the Cheyenne Rodeo remain heroes to this day. Against the best American cowboys, Hawaii's paniolo proved their worth ("Ikua Purdy," 2021).

The paniolo traditions are an essential and significant part of Maui's history and remain an essential part of its culture to this day.



Figure 20. Sale Sproat and Bubu Kamakana in Double Mugging Competition at the 62nd Annual Makawao Rodeo (Matthew Thayer, Maui News, 2017)

The Makawao Rodeo, held in Kula ahupua'a, has been a longstanding tradition in Makawao since 1956 when members of the Maui Roping Club initiated this event. The Maui Roping Club first formed in 1955 by founding members Harold "Oskie" Rice, George Manoa, Sr. and other Maui paniolo. The Rodeo takes place on the Fourth of July weekend when hundreds of entrants compete at the Oskie Rice Arena (on Olinda Road). The "Bull Bash" usually takes place on Friday nights.

Paniolo can enter to compete in a wide range of categories, including "Poowai u." Depending on the location and rodeo, various spelling of this term can be found, some spelling it "Poo Waiu." None of these terms or spellings appear in the Hawaiian language

dictionaries, but a search of alternate spelling “poowaiu” does appear in Hawaiian language articles.

As consistent with the explanations provided by modern rodeo, “poowaiu,” or poʻowaiū, referenced the Hawaiian tradition of capturing wild cattle and then tying them to a tree. Influenced by vaquero styles of ranching, Hawaiian paniolo developed the poʻowaiū method to catch pipi ʻāhiu (wild cattle) that were roaming throughout Hawaiʻi and Maui’s mountain regions. The paniolo lasso the head of a wild cow and then tie it to an ʻāmana (Y-shaped crosspiece or section of a tree) where it could be milked with ease, thus the term poʻowaiū (milk head). These cows were often left tied overnight until they became tired and worn out, at which point they would be led to the corral by a pipi kauō (trained ox). This practice was known as pine in Hawaiian and was a very innovative way of dealing with wild cattle in the mountains. The poʻowaiū competition replicates this activity whereby a paniolo or paniola must catch a steer and then tie it to a post in the middle of the arena.



Figure 21. Paniolo Competing in the “Poowai u” (Poʻowaiū) Competition in the 2018 Makawao Rodeo (Makawao Rodeo, 2018)

In 1939, Inez Ashdown submitted an article to the Hawaiian newspaper, *Ka Hoku o Hawaii*, about the Paniolo history in Hawai'i. Part of the article discusses the very beginnings of cowboy and ranching practices in Hawai'i and explains that the methods of "poowaiu" and "pine" were not used in the early ranching years when wild cattle were first being captured. These methods were apparently developed later on, and are still used today in rodeo events. This is the only Hawaiian language article found within the newspaper archives that discusses the method of "poowaiu." This article also highlights several important Hawaiian paniolo, including Ikua Purdy, and makes an insightful remark about how the paniolo history in Hawai'i is perhaps even more intriguing than the tales of the Wild West. Ashdown (1939, p. 6) also makes claim that the best paniolo of the times resided in Maui:

Na Keiki Paniola.	**The Cowboy Kids.**
Eia nae hoi owai, i keia la, i hiki ke hoomaopopo a paanaau na mele kahiko i poina e hoike ana i na mea e pili ana i na keiki paniolo pipi mua loa i hoea mai ma keia mau kaiaulu?	Nevertheless, who, today, is able to recall or memorize the old songs that have been forgotten that tell the stories about the very first cowboy kids to arrive in these communities?
He poe Mekiko a i ole Paniolo oia wale no ka mea i hoomaopopo ia, no ka mea o ka inoa "paniolo" ua loaa mai ia mai ka inoa "Espanol." O kekahi o na keiki paniolo pipi ka mea nana e hoike mai e pili ana i ka makuakane kupunakane paha he poe Latina lakou.	It was Mexicans or Spaniards, that is all that is remembered, because the term "paniolo" was obtained from the term "Espanol." It was one of the cowboy kids who told us about how the father, or perhaps the grandfather, was of Latin descent.
O Jack Aina, o kekahi o na naita holomua o ka noho, e olelo mai ana "Ai, Kuu makuakane Mekiko. O na paniolo mua loa kai lawe mai i noho lio, kaula, ke kaula waha, kepa, ame na mea apau i loaa ia kakou i keia la."	Jack Aina, one of the riding knights of the saddle, would say, "Yes, My Mexican fathers.[26] It was the first Spaniards who brought saddles, rope, reins, spurs, and all of the things we have today."
Aia ko Aina mau makahiki maluna o ke 60, eia nae hoi oia ke kanaka holo loa ma	Aina is over 60 years old, however, he is the person who has herded cattle

[26] "Ai, Kuu makuakane Mekiko." This line literally translates as, "Eat, My Mexican Fathers" however, the "Ai" could be a misspelt "Ae" which would make the line, "Yes, My Mexican fathers."

ka hooili pipi ana a oia nohoi kekahi o na laeula ma ka hoohei kaula ma ka mokupuni o Maui, a e kuku aku no na poe opiopio iho a nana aku me ka uwauwa ana “Aina! Hu ka makani!” iaia e hemo mai ai mai loko mai o ka pa eke maluna o kona lio kamaaina i ka alakai pipi me kekahi pipi e kekahi poo o kana kaula maluna o 20 kapuai, a komo aku la iloko o ke kai me ka lele ana o ke ehukai iluna.

the longest and he is also one of the experts in throwing rope on the island of Maui. The young folks crowd and look on shouting, “Aina! Hū ka makani!” [27] as he comes out from inside the corral on top of his horse that was trained at herding cattle with a cow [and] one end of his rope over 20 feet high, and he enters the ocean causing the seaspray to burst forth.

E like me ka nui ae o kona anaina o ka oi ia o ka maikai o kana hana ame ka akaaka ana ame ka ae oluolu ana e hoolealea me na lio, o ka oia loa aku nae hoi i na he poe malihini kekahi malaila. A liuliu mahope iho o kona hoomaemae ana a aila ana i kona noho lio ame ke kaula waha, a komo maila nohoi i ka palule nani, ame na lole wawae pale lepo, na kamaa huki ame na kepa-pele a kau iho la nohoi ma kona poo kela papale ooma nui o umi galani, he hoihoi loa oia i ka himeni ana ame ka hula ana no kona haku ame kana mau malihini.

As grandiose as his audience is, his show and the laughter and the eagerness to play with horses is even greater, and is especially great if there are also tourists there. He is ready right after he cleans up, oils his saddle and reins, puts on a dress shirt, his chaps, his boots and jingle bobs, [28] and places a large ten-gallon cowboy hat on his head. He was very fond of singing and dancing hula for his boss and his tourists.

I keia manawa he mea kau lio hou oia a a‘o nohoi na Angus McPhee ma ka Halelio o Keahua o ka Maui Agricultural Company, a o kahi hoi e malamaia ai na lio o ka Hui Hanai Holoholona o Kahoolawe. He loea nohoi oia ma ka hilo kaulaili ana, a ua hoohala oia i ka hapanui o kona manawa ma keia hana ame ka hoonaninani i na noho lio ame na kaula waha, oia hoi e kuni lau ana maluna o na noho lio, no ka mea he

At this time he was a new horse rider taught by Angus McPhee at the Keāhua Stables at Maui Agricultural Company, and at the place where the horses from the Kaho‘olawe Ranch were cared for. He is a master at lassoing and he would spend majority of his time doing this as well as beautifying the saddles and reigns, namely branding the saddle because he was very proud of his pearls and

[27] Hū ka makani, the wind whistles or roars [of things going at great speed.]

[28] Jingle bobs are spurs with bells on them, used to help condition and train horses. Jingle bobs served as a badge of honor because they were only earned by skilled horsemen.

haaheo loa oia o kana mau momi a e nana ana hoi i na aka e like me ke ano mau o na hana a na keiki paniolo pipi.

would look upon their glimmering, just as it is always done by the cowboy kids.

Ua noho hana no oia ma ka Hui hanai holoholona o Ulupalakua i ka wa e noho haku hana ana o Mr. McPhee malaila a e hana pu ana hoi me ka moho kaulana o ke kipukaili , me Ikuwa Purdy, o ke poo hana o ua hui la. Ua makaukau o Ikuwa i na hana o ka aina hanai holoholona mai ka N a hiki i ka W o ka mea hoi e hele malie ana eia nae hoi me he mea la ua maopopo wale iaia kahi e pee mai ana ka pipi ahiu. I ko lakou e puiwa ai e hoomaka ana oia me kona lio punahele e hana e like me ka hele ana a ka uwaki, no ka hoohei ana ame ke kupee ana e like me ka olapa ana a ka uwila.

He was employed at the ʻUlupalakua Ranch at the time when Mr. McPhee was the boss there, and he was working with some famous up and comers at the leather lasso, like Ikuwa Purdy, who was the head worker of the ranch. Ikuwa was an expert at working on the ranch lands from the N [sic] to the W [sic]; he is one who goes about with ease, but always locates wild cattle, as if he just knows where they are hiding. While they are startled, he begins with his favorite horse and works like clockwork, lassoing and tethering like a flash of lightning.

Ua kamaaina nohoi o Aina ia Hapakuka, i make hoi i keia manawa, a kana mau keiki nohoi e lawe lawe nei i kana mau hana kaulana ame kona inoa. A pela nohoi me ia kanaka me Kinau, a i like aku kona ano me kekahi kanaka kaua o ka wa kahiko, a o ka mea hoi nana i hoala mai i ke kanaka kaulio mua loa kaulana, Kamehameha ka Nui, nona hoi na lio ame na pipi, o ka mua loa i Hawaii, a i lawe ia mai Hawaii ma ke ano he mau makana e Vancouver ame Cleveland i na makahiki 1793-4.

Aina also knew Hapakuka, who is dead at this time, and his children as well, who are carrying out his famous deeds and his name. And the same for this person, Kinau, whose disposition was like that of an ancient warrior. And the person who incited the very first famous horse riders, Kamehameha the Great, owned the horses and the cattle, which were the first in Hawaiʻi, and were brought to Hawaiʻi as a gift from Vancouver and Cleveland in the years 1793-4.

Oia mau holoholona i hoea mua ai i Hawaii nei, ua kau ia e ke kapu o umi makahiki e ka Moi Hawaii, a o ua kapu la oia paha ka hoomaka ana o na pipi ahiu e hele ana hoi ma na kuahiwi o Hawaii a

The animals that first arrived here in Hawaiʻi were set under a restrictive period of ten years by the King of Hawaiʻi, and it was perhaps this restriction that started the onset of wild

me Maui a hiki wale i ka manawa a na poe hanai holoholona mahope mai i makemake ai e loaa na pipi maikai ame na lio, i luku aku ai i ua poe pipi ahiu la. O ke ano o ke hoohei ana i keia au aole nohoi alualu ana i na pipi ahiu, a poowaiu i ke kumu laau a pine aku me ka pipi kauo, aole nohoi kela mau kaa pipi no ka huki ana i na kaa ukana.

cattle traveling about in the mountains of Hawai‘i and Maui, up until the time of the ranchers, and after that, people wanted to obtain good cows and horses in order to slaughter the wild cattle. The type of lassoing done at this time did not entail chasing after wild cattle and securing their heads to a tree [po‘owaiū] and then tying them to an ox [pine]; it also did not involve the cattle wagons used to pull carriages.

O Keoki Davies o Hawaii oia nohoi kekahi o na keiki lehia i na hana oia ano, a e hana pu ana hoi me Wile Purdy ame kona mau hoahanai, a o Moku Smythe, Keoki Swift, a he lehulehu o na poe e ae i nee aku paha ma kekahi wahi okoa aku a make paha, aka, o na poe i koe iho a i maopopo ole hoi oiai no nae hoi o ko lakou mau moolelo ua like no a like, a ma kekahi mau ano, ua oi ae, mamua o na moolelo i hoike ia no ka poe koa o ke Komohana kahiko.

Keoki Davies from Hawai‘i was another one the youth skilled at this kind of work, and he worked with Wile Purdy and his cousins and Moku Smythe, Keoki Swift, and there were many others who probably moved to a different place and perhaps died, however, the people who remained here and are unrecognized, although their stories are exactly the same, in some ways, their stories are better than the ones that tell of the heroes of the old West.

Aia no ia paniolo ma Maui i keia manawa he loea ma na hana lima ame ka hana paniolo pipi. O keia Hawaii o Charlie Russell ua kapaia oia o John Lihau Kaaihue a oia nohoi ke poo hana ma na hana pipi ma ka aina hanai holoholona o Honolua. He 41 ona makahiki i keia manawa, a ua hoohuiia oia me kana wahine ma Kaupo i ka makahiki 1919 a ua haaheo nohoi oia i kana wahine maikai ame eiwa mau keiki. He eono mau keiki kane kino puipui ame ekolu kaikamahine ui e kokua ana i ka

These cowboys are located in Maui at this time and they are skilled manual laborers and cowboys. This particular Hawaiian, Charlie Russell, was referred to as John Lihau Kaaihue, and he was the head workman for cattle on the Honolua Ranch. He was 41 years old at this time, and he got together with his wife in Kaupō in the year 1919. He was so proud of his beautiful wife and their nine children. They had six husky boys and three beautiful daughters who helped their

makuakane ma kana mau hana, a i ole i ka makuahine paha ma na hana o ka home a i ole e hoomakaukau ana ame ka ulana lauhala ana...	father with his work, or perhaps their mother with the chores of the house, or else they would help prepare and weave lau hala...

The poʻowaiū and other paniolo practices are extraordinary examples of innovative Hawaiian traditions that have been continued and maintained for over 200 years.

6.11 Modern Hunting

While modern hunting is not a traditional Hawaiian practice, it has certainly become a cultural practice throughout Hawaiʻi. Traditionally, most animals were domesticated, making the need for hunting obsolete. It was not until after foreign contact, when land mammals and ungulates were allowed to roam wild, and hunting weapons, like guns, were introduced to the Hawaiian people, that hunting as we know it today began to gain popularity. The term for hunting in Hawaiian is hahai holoholona, to pursue animals. The need for hunting in Hawaiʻi did not arise until new species of animals arrived in the islands and became wild and widespread. Like the paniolo traditions of Hawaiʻi, hunting is a more modern cultural practice that is influenced by foreign contact, yet Hawaiians have been using introduced technology, including bows and guns, to hunt introduced species such as deer as well as native species, like boar, for generations. In places like South Maui, hunting practices are still very active, and many residents continue to hunt for their food as a part of subsistence living practices. Hunting is considered to be a significant cultural practice within Honuaʻula, including the lands located near the project area. Hunting is also identified in the ethnographic data. There is an extensive deer population in the area. These ungulates are considered invasive, hahai holoholona is important to managing this invasive species.

6.12 Surfing

Traditional surfing in Hawaiʻi has a rich and ancient history that dates back centuries. Surfing, known generally as heʻe nalu, was not just a sport but an integral part of Hawaiian culture and way of life. Surfing in Hawaiʻi can be traced back to ancient Polynesian settlers who arrived in the Hawaiian Islands around 2,000 years ago. These early kānaka settlers brought with them the knowledge and skills of wave riding. Surfing quickly became a significant aspect of Hawaiian society.

John R.K. Clark (2011, p. 19) explains that traditional surfing consisted of six different sports:

- Heʻe nalu – board surfing
- Heʻe one – sand sliding

- He‘e pu‘e wai – river surfing
- Kaha nalu – body surfing
- Pae po‘o – bodyboarding
- Pākākā nalu – outrigger canoe surfing

Traditional surfing held deep spiritual and cultural significance in Hawaiian society. It was not only a recreational activity but also a way to connect with the ocean and the gods. Hawaiian mythology includes stories of powerful deities who were skilled surfers, further emphasizing the cultural importance of surfing. In the early days of Hawaiian surfing, surfboards were typically made from local materials such as koa wood. These wooden surfboards were heavy and often quite large compared to modern surfboards.

Surfing played a role in the social hierarchy of ancient Hawai‘i. Ali‘i often had access to the best surf spots, and the sport was used to reinforce their status. Commoners also surfed, but their boards were usually of lesser quality. With the arrival of European explorers and missionaries in the late 18th century, Hawaiian society underwent significant changes. The influence of Western culture led to a decline in traditional Hawaiian practices, including surfing. Surfing was even discouraged and suppressed by missionaries who viewed it as immoral.



Figure 22. Mākena State Park’s “Big Beach” (Getty Images, n.d.)

The 20th century saw a revival of interest in surfing in Hawai‘i. In the early 1900s, individuals like Duke Kahanamoku, often regarded as the father of modern surfing, helped reintroduce and popularize the sport. Duke’s travels and surf demonstrations in the United States and around the world played a crucial role in spreading surfing beyond Hawai‘i. Today, Hawai‘i is known as one of the world’s premier surfing destinations. It is a global hub for surfers and continues to serve as an important cultural practice.

Traditional Hawaiian surfing techniques and the spirit of he‘e nalu are still respected and honored within the modern surfing community. Hawaiians take pride in their surfing heritage and continue to play a prominent role in the sport’s development and culture. There are numerous important surfing spots in Makena, as well as other beach locations. Based on site visits and discussions with area locals, most local residents, including youth, surf at the area of “Big Beach” at Mākena State Park of Oneloa known as “third entrance.”



Figure 23. "Third entrance," where local residents will often come to surf. (Photo: T. Watson, 2024)

6.13 Fishing, Spearfishing, and Limu Picking

The people of Honua‘ula maintained a profound connection to the sea throughout their history. This ancestral relationship with the ocean shaped not only subsistence practices but also spiritual beliefs, social organization, and cultural identity. Historical accounts, archaeological evidence, oral histories, and ethnographic studies provide a rich tapestry of information about the fishing traditions that have defined this region of Maui for centuries.

6.13.1 Traditional Connection to the Sea in Honua‘ula

According to an 1836 account by Naleipuleho, Honua‘ula was described as an “‘āina wī,” or “land of famines.” Residents lived either along the shore or in the mid-uplands, creating a distinct social geography defined by access to resources. Those living near the shore had the advantage of being “near freshwater and fish but had to travel far to access vegetable foods,” while those in the uplands faced the opposite challenge (Naleipuleho, 1836).

This fundamental relationship between coastal and upland communities created a symbiotic exchange system that was the backbone of Honua‘ula society. Maly & Maly (2003) explain that this pattern was common throughout Hawai‘i:

> The people of the land (kānaka) were noted for their expertise... The kūpuna (elders) of native families from the remote coastlines of Hawai’i have reported that they could determine when schools of certain fish would be coming to their shores by observing the phases of the moon and the condition of specific plants growing in or near the coastal region. (p. 5)

Early observations from European explorers confirm the significance of fishing in the region. In 1786, Jean-François de Galaup became one of the first Europeans to document the maritime activities in what is now the Makena area. He described encountering more than 120 Hawaiians who came out in canoes at dawn to engage in trade, suggesting an active and well-established maritime community:

> More than one hundred and twenty of them, men, women, and children had been out in their canoes since the crack of dawn and immediately offered to begin trading... When he returned aboard, the commander learned that Captain Clonard, his executive officer, had received a chief and had bought a cape and a fine red helmet from him; he had also acquired more than one hundred pigs, some bananas, yams, taro, mats, and various small objects made of feathers and shells. (de Galaup, 1969, pp. 24-25)

This account reveals not only the presence of active fishing communities, but also suggests a well-developed system of exchange centered on marine resources.

6.13.2 The Ahupua‘a System and Fishing Rights

Traditional fishing practices in Makena were embedded within the larger ahupua‘a system of land management. The ahupua‘a of Pāpa‘anui, Kā‘eo, Maluaka, and Mo‘oiki—which comprise the modern Makena area—were designed to give residents access to resources from the mountains to the sea. As Maly & Maly (2003) explain:

> In ancient Hawai’i, all fishing grounds were the property of certain chiefs and kings, and by them, portions were assigned to the people of designated areas of land... While konohiki (landlord-resource managers) and ho‘āina (native tenants) held the first rights to fisheries attached to their lands, traditions, historical accounts, and laws of the kingdom record that ancient custom and practice respected the rights of people to travel to, and fish at more distant fisheries. (p. 9)

This system created a complex set of rights and access protocols that regulated fishing activities. Within this framework, specific fishing grounds were known, named, and carefully managed. Though many of these names have been lost to time, historical records mention fishing grounds in Honua‘ula such as Hiu, Keahua, Kalawa, and Kiele, each likely associated with particular species, fishing techniques, or seasonal patterns.

6.13.3 Traditional Fishing Techniques

Native Hawaiians in Makena employed a diverse array of fishing techniques adapted to the specific marine environments and target species of the region. Maly & Maly (2003) document numerous traditional fishing methods that would have been practiced in areas like Honua‘ula:

> Fishing techniques varied depending on the species being sought, the condition of the sea, the abilities of the fishermen (and women), and the length of time one was fishing. The methods included hand collecting, trapping, spearing, poisoning, using hook and line, using nets and seines, and fishing with decoys. (p. 7)

Daniel Kahā‘ulelio, a native authority on traditional fishing practices born in 1835, provided detailed accounts of fishing techniques in his Hawaiian language newspaper series later compiled as “Ka ‘Oihana Lawai‘a” (Hawaiian Fishing Traditions). Though not specific to Makena, his accounts describe techniques that would have been employed along the Honua‘ula coastline:

> There are many, many ways to fish with nets... Among these is the hukilau, which uses a long net. The lawai‘a (fishermen) would go out; some would take the net out in canoes, and some from the land. Then they would surround the ko‘a (fishing ground) and drive the fish shoreward. (Kahā‘ulelio, 2005, p. 8)

Archaeological evidence and oral histories suggest that the coastline of Makena was particularly well-suited for certain fishing techniques, especially those employing nets in the shallow reefs and bays. The relatively protected waters in areas like Maluaka Beach and near Pu‘u Ōla‘i would have facilitated methods like surround netting (hukilau) and scoop netting.

6.13.4 Fish Preservation and Processing

Given the periodic food shortages that Honua‘ula experienced, preserving fish was essential for survival. Historical accounts indicate that drying fish facilitated easy transport and storage for times when food ran short. Salt production from basins along the shoreline of Oneuli complemented this preservation practice, creating a sustainable food system adapted to the region’s variable conditions.

Maly & Maly (2003) describe the traditional methods of fish preservation that would have been practiced in Makena:

> Among the significant traditional methods of catching and handling fish... were types of pa‘akai (salt making) and drying methods to cure fish for storage and trade. Salt was collected from natural, ocean-fed ponds in certain locations. In some localities, kānaka (people) made their pa‘akai by evaporating sea water from stone salt pans (kaheka). (p. 6)

The importance of these preservation techniques cannot be overstated in understanding the fishing traditions of Makena. In an area prone to drought and famine, the ability to preserve fish represented not just a food storage strategy but a critical adaptation that made permanent settlement possible in this challenging environment.

6.13.5 Fishponds (Loko I‘a)

Historical records document that Honua‘ula once had fishponds, though many have been lost over time. Chief Kauholanuimahu, who rose to power on Maui in the mid-1400s, is credited with “building a fishpond at Keone‘ō‘io” (Kamakau, 1992). Additionally, a small pond was situated along the point called ‘Āpuakēhau near the Keawala‘i Congregational Church, though it was eventually destroyed by surf.

Loko iʻa represented one of the most sophisticated aquaculture systems in the ancient world. Maly & Maly (2003) explain:

> Loko iʻa (fishponds) were another important component of traditional life in Hawaiʻi. They were something like a natural refrigerator from which fish could be harvested as needed. Loko iʻa were built upon or adjacent to naturally occurring features in the kai (ocean) or wai (freshwater), and enhanced to optimize fish production. (p. 7)

While the Makena area did not have as many large fishponds as other parts of Maui, the documented presence of at least two fishponds suggests that this technology was part of the local fishing tradition, likely serving as both a reliable food source during lean periods and as a demonstration of chiefly power and resource management.

Various resources provide valuable information about fishing communities in Honuaʻula and their resource use patterns. Keoneʻōʻio Fish Pond is described in Sterling (1998) as being:

> …attributed to a certain Kauholanūīmahu of Hawaii who came over to reside at Honuaula, Maui, for a few years. It consists of a wall of stones extending 200 feet across the channel, but a tidal wave broke out part of the wall and it has never been rebuilt. Small pools on the lava point beyond Keoneʻoʻio to the west were utilized by the natives to raise large mullet from the small fry caught in the sea pond. (p. 228)

Further information about Kauholanūīmahu indicates he “was the son of Kahoukapu and Laakapu” and “resided a great portion of his time at Honuaula, Maui, where he exercised royal authority, and, among other useful works, built the fishpond at ‘Keoneʻoʻio,’ which still remains” (Sterling, 1998, p. 228). Sterling suggests peaceful relations between Hawaiʻi and Maui during this period, with a Hawaiian royal maintaining residence in Honuaʻula and contributing infrastructure developments like the fishpond. Sterling also notes a possible connection to Maui chiefess Neula, who may have been Kauholanui's wife, potentially explaining “the frequent and protracted residences there by Kauholanui” (1998, p. 228).

6.13.6 Fishing Shrines (Koʻa and Kūʻula)

Archaeological evidence documented by Winslow M. Walker in 1929 identified several fishing shrines (koʻa or kūʻula) in the Makena area. Walker (1931) described the Oneuli koʻa as “a rough [stone] platform 13 by 14 ft and 5 ft high at the front” with “a low wall surround[ing] it on three sides” (p. 103). He also identified another koʻa “located near the

southern end of Maluaka Beach, on a rocky point at a spot he calls Kilauea" (Walker, 1931, p. 103).

These fishing shrines were essential components of the spiritual dimension of fishing in Hawaiian culture. Maly & Maly (2003) explain their significance:

> Ancient Hawaiians placed great importance on managing resources, and fishermen in all ahupua'a maintained and worshiped at shrines—ko'a (fishing shrines) and kū'ula (the stone god forms, named after an honored fisherman-deity). Offerings were placed at the ko'a and kū'ula to ensure that fish would return to the grounds and be given to the fishermen. (p. 6)

According to Hawaiian cultural practices, these ko'a served multiple important functions:

1. **Navigation landmarks**: They helped fishermen identify fishing grounds from the sea;
2. **Observation points**: Some were used to kilo (observe) ocean conditions and sight schools of fish;
3. **Spiritual sites**: Places where fishermen would ask for safety and favorable conditions; and
4. **Religious focal points**: Often featuring upright stones representing Ku'ula-kai, a primary fishing god

The presence of multiple fishing shrines in the Makena area underscores the cultural and spiritual significance of fishing in traditional Hawaiian society. These were not simply utilitarian structures but sacred sites that connected the community to their ancestors, gods, and the marine environment.

Elspeth Sterling's research (1998) documents that Pu'u Ōla'i, the prominent hill at Mākena State Park, featured a ko'a described as a "square heap of black stone" where "fishermen made offerings before putting out to sea" (p. 229). Additionally, oral traditions reference a large underwater cave near Pu'u Ōla'i considered a sacred dwelling place for deified manō, where families who claimed the manō as their 'aumakua would perform various protocols.

The relationship between Hawaiians and sharks as 'aumakua was particularly important in fishing traditions. Maly & Maly (2003) explain:

> Sharks were among the most important 'aumākua, and in general, the native families dwelling in various communities of the islands shared close relationships with their shark 'aumākua. Indeed, the ability of fishermen to engage in their work was often tied to their relationship with such deities and their natural forms. (p. 8)

Pu‘u Ōla‘i itself features prominently in Hawaiian legends related to fishing and marine resources. According to mo‘olelo, the hill was formed when the goddess Pele cut a mo‘o named Pu‘uoinaina in half, with the tail becoming Pu‘u Ōla‘i and the head becoming Molokini islet. This origin story connects the landscape directly to Hawaiian cosmology and underscores the sacred nature of the area’s marine resources.

6.13.7 Seasonal Migration and Fishing Practices

Matsuoka et al. (1996) documented an important seasonal pattern based on kama‘āina Sam Po’s account, noting that “even up through the latter half of the 19th century, the Hawaiians in the district continued to live mauka or makai and plant in accordance with the annual rains” (p. 73). This seasonal movement pattern demonstrates how fishing was integrated into a broader subsistence strategy adapted to Honua‘ula’s challenging environment.

Matsuoka et al., (1996) go on to explain:

> …about once month before the rainy season began, they would carry dirt down from the mountains to the coast in lauhala baskets and fill holes in the lava in preparation for planting... While on the coast, the Hawaiians would subsist on fishing and various vegetable foods that they cultivated in soil placed in the pockets of lava and nurtured by the rain. (p. 73)

This seasonal adaptation reflects the sophisticated ecological knowledge that underpinned fishing practices in Makena. Maly & Maly (2003) elaborate on how Hawaiians throughout the islands synchronized their fishing activities with natural cycles:

> In the practice of fishing (malama i ke kai), understanding natures’ cycles and the relationships between species and their places of habitation were critical to the success of the native fishermen. Some fish were available year around, but many species were seasonal in nature. (p. 5)

The seasonal migration pattern described by Sam Po represents a complex adaptation to Honua‘ula’s unique environment, allowing communities to optimize their use of both terrestrial and marine resources throughout the year.

6.13.8 Settler Colonialism Impacts on Fishing

The arrival of Western ships brought foreign settlers to the island. The subsequent changes to Hawaiian society significantly impacted traditional fishing practices in Makena. Missionary Jonathan S. Green observed in an 1846 letter to *The Polynesian* (See **Section 3.3.3** for full transcript of letter) that the whaling industry was drawing young Hawaiian men away from their communities and into the sea. This exodus of young men

represented a significant disruption to the transmission of traditional fishing knowledge and practices. As expert fishermen left their communities to work on whaling ships, the intergenerational transfer of specialized knowledge about fishing grounds, techniques, and protocols was interrupted.

Foreign accounts also illustrate how introduced animals impacted the landscape that supported traditional fishing practices. Handy et al. (1972) note that "in Honuaula, as in Kaupo and Kahikinui, the forest zone was much lower and rain more abundant before the introduction of cattle," suggesting ecological changes that would have affected the entire subsistence system, including fishing (p. 508).

The deforestation caused by cattle had far-reaching impacts on marine ecosystems. As upland forests receded, soil erosion increased, resulting in greater sediment flows to nearshore waters. This sedimentation would have damaged coral reefs and changed the composition of fish communities. Additionally, the loss of regular rainfall patterns due to deforestation would have affected the seasonal cycles upon which traditional fishing practices depended.

6.13.9 The Impact of the Māhele on Fishing Rights

The Māhele fundamentally transformed traditional fishing rights. Prior to this event, fishing rights were embedded within the ahupua'a system, but the privatization of land disrupted

this system and introduced new legal frameworks for marine resource access.

Maly & Maly (2003) explain this transition:

> By the middle 1800s, as Hawaiian customs and practices were being transformed... those leading the nation began to record laws concerning fishing rights of the people... By the 1839-1840 period, King Kamehameha III had expressed concern about the depletion of marine resources around the populated Hawaiian islands, and the seizing of fishing grounds by foreigners. (p. 10)

In Mākena, the Māhele resulted in land divisions that separated traditional fishing communities from their ancestral fishing grounds. The ahupua'a of Kā'eo was split into two halves, with King Kamehameha III claiming one half along with the ahupua'a of Maluaka, while the konohiki Mahoe claimed the other half. These divisions created new boundaries and access restrictions that undermined traditional fishing practices.

6.13.10 Military Disruption and Modern Transformation

Oral histories document significant disruption to fishing communities during World War II. Annie Leimomi Chang Wilmington, born in Mākena in 1907, recalled the displacement of

coastal families: “When the war started coming, they told everybody from the beach they had to move. [People] were selling their houses… but they [the military] took [bulldozed] all the homes so we didn’t get anything but fifty dollars for it” (de Naie, 2007, p. 219).

This forced relocation fractured fishing communities and severed their direct connection to the sea. Military activities along the coastline, including amphibious training exercises between Maʻalaea and Cape Kīnaʻu, physically altered fishing grounds and damaged marine habitats. The dismantling of Mākena Landing pier removed critical infrastructure that local fishermen had used to access offshore fishing grounds.

The post-war period saw continued decline in traditional fishing communities as economic opportunities shifted away from subsistence activities. Many displaced families never returned to Mākena after the war, resulting in a permanent loss of localized knowledge about fishing grounds, techniques, and seasonal patterns specific to the Mākena coastline.

6.13.11 Tourism Development and Fishing Traditions

The transition to tourism in the latter half of the 20th century represents the most recent phase affecting traditional fishing practices. In 1973, Ulupalakua Ranch sold 16 acres of beachfront property and an additional 1,000 acres to Seibu Holdings, Inc. for the creation of its proposed Mākena Resort, beginning a new era of development that would permanently alter the relationship between local communities and marine resources.

The development of resort properties, golf courses, and luxury residential communities transformed land use patterns and restricted access to traditional fishing areas. Beach parks and public access points provided limited entry to the shoreline, but many traditional fishing spots were effectively privatized or altered by development. The $40 million, 300-room Maui Prince Hotel, completed in 1986, symbolized this transformation from a fishing community to a tourist destination.

Even historic trails used by fishermen were threatened by development. A group called Hui Ala Nui O Makena had to fight legal battles to preserve a portion of the Makena-Keoneoio Road—a segment of Ke Alaloa, an ancient coastal trail used by fishermen for centuries. Though mediation in 1987 preserved a 1,100-foot section as a pedestrian pathway, the larger network of trails that had connected fishing communities was largely lost to development.

6.13.12 Contemporary Fishing Practices

Despite these profound changes, fishing continues to be practiced in Makena, albeit in forms that differ significantly from traditional practices. Recreational fishing, including

shoreline casting, spearfishing, and boat-based trolling, has largely replaced subsistence fishing. Some traditional knowledge persists among families with deep roots in the area, but many traditional fishing grounds, techniques, and protocols have been lost or transformed.

Modern fishing regulations, enforced by the State of Hawai‘i Division of Aquatic Resources, have replaced the kapu system that once governed fishing activities. Size limits, bag limits, seasonal closures, and gear restrictions now dictate when, where, and how people can fish. While these regulations aim to protect marine resources, they represent a fundamentally different management philosophy than the traditional system based on intimate local knowledge and cultural protocols.

The fishing traditions of Makena represent a rich cultural heritage that spans centuries of Hawaiian history. From the ancient ko‘a that marked sacred fishing grounds to the seasonal migrations that synchronized human activities with natural cycles, these traditions reflect a sophisticated understanding of marine ecosystems and sustainable resource use. Though profoundly transformed by historical forces—from the introduction of private property to the rise of tourism—elements of this heritage persist in contemporary practices and cultural memory.

As Makena continues to evolve in the 21st century, the recovery and revitalization of traditional fishing knowledge offers not just a connection to the past but potentially valuable insights for addressing modern environmental challenges. The deep ecological understanding embedded in traditional fishing practices—with its emphasis on seasonality, species-specific approaches, and community-based management—provides a counterpoint to industrial fishing models and offers lessons in sustainability relevant to contemporary conservation efforts.

This historical analysis reveals that fishing was not merely an economic activity, but a complex cultural practice deeply embedded in the spiritual, social, and ecological fabric of Honua‘ula. The fishing traditions of Makena represent an adaptation to challenging environmental conditions, reflecting the innovation, resilience, and deep ecological knowledge of its inhabitants across many centuries—a legacy that continues to shape the identity and future of this special place.

6.14 Paddling

Hawaiian outrigger canoe paddling is deeply rooted in the cultural heritage of the Hawaiian Islands. It is a traditional form of canoeing that has been practiced by the indigenous people of Hawai‘i for centuries. Outrigger canoes are large canoes with a smaller attached float, or outrigger, on one side for stability.



Figure 24. Outrigger Canoe Paddling as a Part of the Outdoor Pursuits Program (Mākena Golf & Beach Club, n.d.)

Canoe paddling holds cultural significance for Hawaiians. In ancient times, outrigger canoes were essential for fishing, transportation, and exploration between the islands. They played a vital role in the lives of the Hawaiian people and were deeply connected to their identity. Paddling plays a vital role in preserving Hawaiian culture and connecting the present generation with their ancestral heritage. It provides a platform for passing down traditional knowledge, values, and skills to younger generations, ensuring the continuation of this rich cultural practice. It is also often seen as a spiritual experience. Hawaiians believe in the concept of mana, a spiritual energy or power that exists in all things. Paddlers connect with the ocean, nature, and their ancestors during their time on the water, fostering a deep sense of respect and reverence.

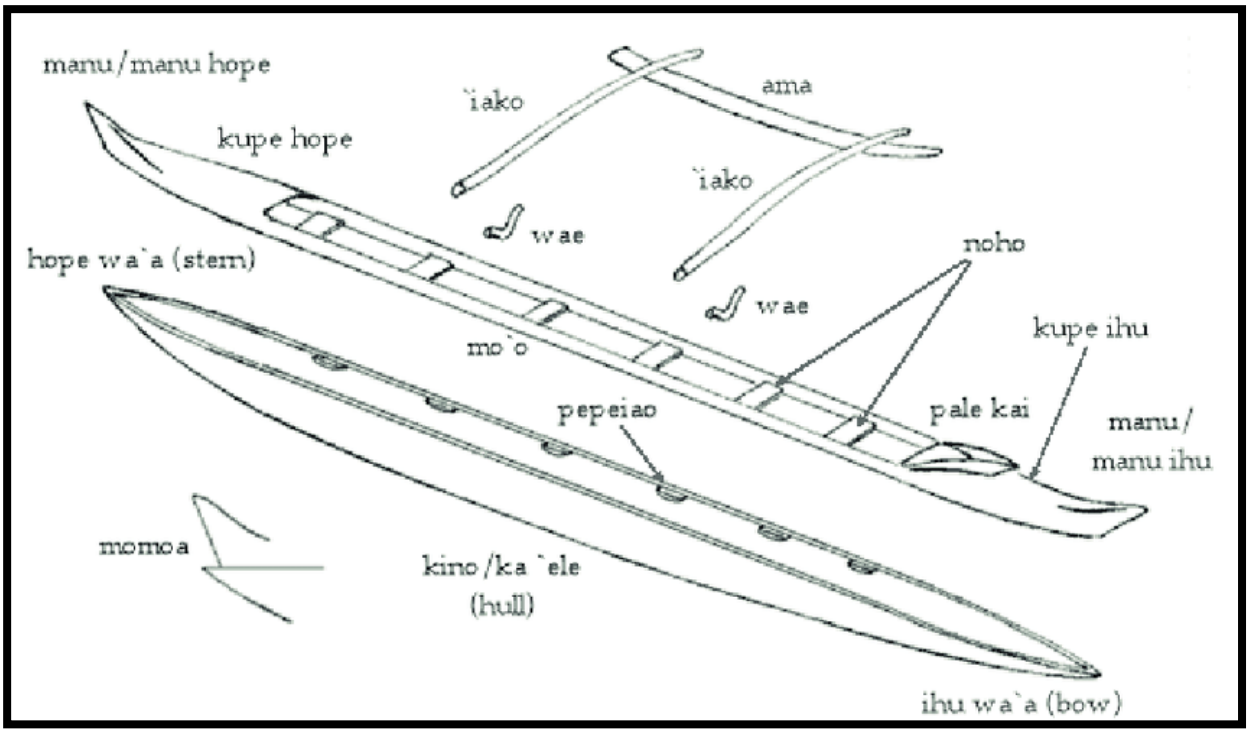

Figure 25. Diagram of Traditional Hawaiian Outrigger Canoe (Babineau, 2004)

Hawaiian names for the parts of an outrigger canoe with English translations:

- Aha – braided or twisted cord used in lashing the canoe
- Ama – float/outrigger
- Hoe – a paddle; to paddle
- Hope waʻa – stern (back end of the canoe)
- ʻIako – spars, boom
- Ihu waʻa – bow (front end of the canoe)
- Kanaka – stern end of ama
- Kapuaʻi – part of ʻiako between hull and ama
- Kino/Kaʻele/Kuamoʻo – hull, keel
- Kua ʻiako – portion of the ʻiako lashed to the hull
- Kupe hope – curved end piece covering the aft part of the hull
- Kupe ihu – curved end piece covering the fore part of the hull
- Lupe – bow end of ama
- Manu hope – stern end piece
- Manu ihu – bow end piece
- Manu kupe –to steer a canoe
- Momoa – under part of the rear covered section of a canoe
- Moʻo – gunwale

- Muku – ends of ʻiako that extend beyond the hull
- Noho – seat
- Pale kai – splash board
- Paʻu – storm covers, spray skirts
- Pepeiao – lugs or blocks inside a canoe hull to which the ʻiako, booms, and perhaps the mast are fastened
- Pikao – hull
- Wae – spreaders
- Waʻa – canoe, also vaʻa, waka

The Mākena Golf & Beach Club has an Outdoor Pursuits Program that provides group outrigger canoe tours with expert guides.



Figure 26. Group Outrigger Canoe Tours at Mākena Golf & Beach Club (n.d.)

There are numerous canoe paddling clubs and organizations throughout Maui that promote the sport, teach traditional techniques, and organize races and events. These clubs are an integral part of the canoe paddling community and provide opportunities for both recreational and competitive paddling. Hawaiian outrigger canoe paddling is not only a sport but also a way of connecting with the land, sea, and culture.

6.15 Kahoolawe

The association between Honua‘ula and Kaho‘olawe is rooted deeply in shared cultural landscapes, interisland practices, and spiritual traditions. Despite Kaho‘olawe’s physical isolation, its proximity to Honua‘ula—across the relatively narrow ‘Alalākeiki Channel—allowed for enduring social, spiritual, and subsistence ties between the communities of Maui and the island.

Oral traditions and chants suggest that Kaho‘olawe was viewed as a child of Holani and, along with Molokini (considered its “lewe,” or navel string), formed a triad of spiritually significant places aligned with Honua‘ula. The two places were not simply geographically adjacent—they were spiritually and culturally entwined. The island’s western cape, Kealaikahiki, literally means “the path to Tahiti” and was a known point for celestial navigation, offering a direct cultural and visual line to Honua‘ula’s coastline and to traditional voyaging routes extending toward the ancestral homeland of Kahiki.



Figure 27. "Kahoolawe Village" (Hawaii State Archives, Ref. GN-5-21102)

Kahoʻolawe is considered part of the Honuaʻula moku and its own ahupuaʻa therein. The people of Honuaʻula historically used Kahoʻolawe as a seasonal fishing and ritual station. With few permanent residents on Kahoʻolawe, it served instead as a place of periodic visitation, where fishing camps were established and ceremonial activities were conducted. The shallow waters and rich fisheries around both islands provided sustenance and economic benefit to residents of the south Maui coast. These activities underscore a reciprocal relationship, wherein the resources of Kahoʻolawe complemented and supported the population and practices of Honuaʻula.

Prior to Western contact, and even into the early 19th century, the people of Honuaʻula and the broader region of Maui used Kahoʻolawe as a satellite resource zone. Archaeological and ethnohistoric records indicate that while Kahoʻolawe may have lacked consistent freshwater and arable land for extensive agriculture, it supported extensive fishing operations. People from Honuaʻula would cross the channel in canoes, often stopping at Molokini to rest before continuing to the island.

Fishponds, koʻa (fishing shrines), and salt pans were among the cultural features documented historically and archaeologically on Kahoʻolawe. These were maintained by people living on Maui—especially from the coastal regions like Honuaʻula—who had lineal, genealogical, and resource claims to the land and sea around Kahoʻolawe. The relationship was not based on permanent settlement but on a rhythm of access governed by knowledge of winds, tides, and lunar calendars.

The island was also used for ritual purification, training of navigators, and religious observance. The barren terrain and isolation of Kahoʻolawe made it a revered wahi pana for kāhuna (priests) who sought solitude for ceremony and prayer. The spiritual importance of Kahoʻolawe resonated throughout Maui, particularly for Honuaʻula residents who maintained family and ceremonial ties to the island.

In the early 19th century, the use of Kahoʻolawe changed dramatically when the Hawaiian monarchy designated it as a place of exile. Convicts—many of whom originated from Maui—were sent to the island, and the last of the fishing families relocated, often to nearby districts such as Honuaʻula. Many of these families are now Makena descendants. This transition deepened the ties between the two places, as families in Honuaʻula remained connected to loved ones exiled to the harsh and often dangerous conditions of Kahoʻolawe.

Later, attempts to graze livestock and establish ranching operations on the island (e.g., by Kahoolawe Ranch and other ventures) had ecological and cultural consequences. Overgrazing and deforestation led to catastrophic erosion, impacting marine ecosystems shared with Honuaʻula. The cultural impact was equally devastating, as continued

degradation severed access to many significant cultural sites and disrupted traditional practices tied to the channel and the surrounding fisheries.



Figure 28. Historic photo of Kahoʻolawe ca. 1899 (Olivares, 1899)

When the island was taken by the U.S. Navy and used as a bombing range starting in 1941, the cultural and physical relationship between Honuaʻula and Kahoʻolawe was further damaged. But resistance to this occupation and destruction was led, in part, by Native Hawaiians from Maui—including those with ancestral ties to Honuaʻula. The resurgence of activism in the 1970s, particularly the efforts of Protect Kahoʻolawe ʻOhana (PKO), reaffirmed the deep genealogical and cultural link between the people of Honuaʻula and the island of Kahoʻolawe.

Today, efforts to heal and restore Kahoʻolawe continue to rely on cultural practitioners and community leaders, many of whom descend from lineages rooted in Honuaʻula. Ceremonies are conducted to reestablish traditional practices, honor ancestral ties, and restore ʻike kūpuna (ancestral knowledge) associated with navigation, fishing, and spiritual engagement. The annual Makahiki ceremonies on Kahoʻolawe, for instance, are facilitated by practitioners from Maui who regard the island not just as a historic site but as a living, sacred space.

In addition, the oceanic space between Honua‘ula and Kaho‘olawe—‘Alalākeiki Channel—remains central to ongoing efforts to revitalize traditional ocean practices, such as wa‘a (canoe) voyaging, kilo (observation), and cultural fishing. The revival of these traditions links contemporary communities with ancient knowledge systems that saw the waters between Maui and Kaho‘olawe as highways of culture rather than barriers.

The cultural association between Honua‘ula and Kaho‘olawe is one of shared genealogy, reciprocal ecology, and interdependent cultural practice. This connection has endured centuries of upheaval—from Western contact and colonial transformation to military occupation and environmental degradation. Yet, the traditions and memories that bind these places remain active, carried by families and practitioners who continue to cross the channel, perform ceremony, and fight for the integrity of their ancestral lands and waters. In the face of ongoing ecological and political challenges, the cultural resources of both Honua‘ula and Kaho‘olawe remain vital to the Native Hawaiian identity and the perpetuation of ‘āina-based knowledge and lifeways.

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7.0 Impact Assessment

While the nature of the proposed activities has the potential to adversely impact cultural resources and practices, the project has intentionally designed the project to avoid most potential adverse impacts to cultural practices. Therefore, the project as currently conceptualized would not significantly and adversely impact cultural resources or traditional or customary practices. Specifically, the project proposed the following actions to avoid or minimize potential adverse effects: 1) the project has completed archaeological surveys and proposed to avoid any impacts to significant historic properties, 2) the project is resulting in a net increase of native species in the region, resulting in a net benefit to that cultural resources and associated practices, and 3) the project is increasing access to culturally significant areas like the area

There are wahi pana within the overall property in which the project area is located, but it is not currently anticipated that any of the resources or practices in the area would be adversely impacted as a result of the project activities.

7.1 Impacts to Flora

The biological survey of Makena reveals a landscape that, while heavily impacted by invasive species and ungulate pressure, still harbors significant native biological and cultural resources worthy of protection. The native plants documented, particularly wiliwili, maiapilo, and other rare endemics, represent important components of Hawai‘i’s biological heritage. Similarly, the Polynesian-introduced canoe plants like kukui, hau, and milo form a living connection to traditional Hawaiian culture and land management practices.

The potential impacts of development on these resources are considerable but could be mitigated through thoughtful conservation planning. The biological survey makes a compelling case that restoration of this area, even as development proceeds, offers a rare opportunity to showcase how ecological rehabilitation can be integrated with land development to create a more sustainable and culturally resonant outcome.

While the biological survey does not explicitly detail the potential impacts of the proposed development, several concerns can be inferred:

1. Habitat Loss – Development will likely result in direct loss of habitat for native plants and animals, including areas where rare species like wiliwili, maiapilo, and puakala are found. This could further reduce already diminished populations.

2. Hydrological Changes – Construction and landscaping could alter water flow patterns, potentially affecting moisture-dependent native species or encouraging erosion that damages native plant communities.
3. Noise and Light Pollution – These forms of pollution can disrupt native wildlife, particularly the endangered ʻōpeʻapeʻa and native birds like the pueo.
4. Potential Loss of Cultural Resources – Native and Polynesian-introduced plants have significant cultural value for traditional practices, medicine, and crafts. Their loss represents not just ecological damage but cultural impoverishment.
5. Fragmentation Effects – Even if some native areas are preserved, development may isolate these into small fragments, reducing their ecological viability and making them more vulnerable to edge effects and invasive species.

Despite these challenges, there are significant opportunities for ecological restoration and preservation of cultural resources. The presence of remnant wiliwili forest and rare endemic species provides a foundation for rebuilding a healthier native ecosystem. Restoration efforts implemented throughout the construction process could create a model of conservation-minded development. The detailed species inventory presents valuable baseline data for conservation planning. By identifying the precise locations of native species, particularly rare endemics, conservation zones can be strategically established to maximize protection of biological and cultural resources. The biological report also notes that improving the diversity of native understory plants would reduce fire risk while simultaneously enhancing habitat value for native wildlife.

All interviewees mentioned the importance of the native vegetation, such as wiliwili. Kalei Luʻuwai recalled that the uplands of Makena used to be “shrub lands” rather than dominated by invasive species like kīawe in his youth, illustrating that the current landscape is relatively recent rather than a long-established ecosystem. CJ Elizares and Leahi Hall recommend that the project engage with cultural practitioners intimately familiar with Makena, as they can ensure protection of native species, advocate for culturally appropriate landscaping, and create protected areas for culturally significant species.

7.2 Impacts to Fauna

The cultural significance of the species observed in the project area is detailed in **Section 4.2.2 (Fauna)** and primarily centers around their importance in Hawaiian mythology.

The biological survey identified endemic and indigenous species in the project area that are of conservation concern: ʻōpeʻpeʻa, koloa maoli, alae keʻokeʻo, and aeʻo. The endemic pueo was surveyed with low occurrence, but this species is found on all the main Hawaiian Islands and is listed as endangered only on Oʻahu.

The ʻōpeʻapeʻa is an endemic, endangered bat found across all the main Hawaiian Islands. This species roosts in native and non-native vegetation from 3-29 feet above ground level and forages along coastlines and forest/pasture boundaries (Russell et al., 2015). To minimize any potential impacts to this endangered species, trees within and near the project are should not be cleared during roosting season from June to September.

Koloa maoli, alae keʻokeʻo, and aeʻo are all birds that are federally and state listed as endangered and found in wetland habitats. The biological report acknowledged that these waterbirds were “sighted but of rare occurrence” during the survey period (Barboza, 2025, p. 11). The project should take care to ensure that these endangered waterbirds are not nesting within the project area’s aquatic habitat and golf course ponds before any work begins.

CJ Elizares explains that ʻiwa birds have been observed using the project area for training their young to ride thermal currents. The golf course water features create valuable habitats for the endangered waterbirds, illustrating that modern development can sometimes create unintended beneficial spaces for culturally significant species. In addition to monitoring the project for the endangered species observed within the project area, CJ recommends designed lighting that minimizes the impacts on native wildlife.



Figure 29. ‘Iwa birds off shore near Molokini. (Photo: T. Watson, 2024)



Figure 30. Image of ‘iwa bird drinking water from golf course pond (Photo: T. Watson, 2024)

7.3 Impacts to Historic Sites

ASM Affiliates conducted an Archaeological Literature Review and Surface Survey of the project area. The ASM investigation included two pedestrian survey methodologies: 20-meter transect survey of the entire 913-acre Survey Area followed by 5-meter transect survey and detailed feature documentation within portions of the Survey Area being considered for residential development. Based on the results of an initial 20-meter transect survey, three Preservation Areas (covering a total of 76.7 acres of the most intact areas of the archaeological landscape) were identified and withdrawn from development consideration. Within the three agreed-upon Preservation Areas, at least 78 previously documented sites were re-identified, and 29 features were newly identified. Outside the three agreed-upon Preservation Areas, at least 194 previously identified sites (associated with at least 310 archaeological features) were re-identified, and 188 features were newly identified as a result of the survey.

Impacts to historic sites on the remaining parcels, if any, will be covered by Hawaii Revised Statutes (HRS) 6E and Hawaii Administrative Rules (HAR) 13-284 during the entitlement process. Upon discovery of any additional significant archaeological sites or features, should any be found, appropriate action should be taken to avoid, minimize, or mitigate impacts to those resources.

Considering the heightened sensitivity regarding historic properties and iwi kūpuna on Maui and in this region, the project would be well-advised to ensure a thorough archaeological survey is prepared in areas of potential concern and that the survey is approved by SHPD prior to any ground-disturbing activities. Leahi Hall emphasizes that select archaeologists who are approved by the Cultural Focus Groups and culturally knowledgeable individuals from the area should be consulted in the event of iwi discovery.

CJ Elizares explains that Makena's uplands have up to 27 house sites that date back roughly 400 years and include water catchment systems and terraced gardens. He details sites scattered throughout the property among areas that have been disturbed by historical and modern land use. CJ also explains that there are traditional pathways crossing through the project area. He emphasizes that the project should utilize appropriate cultural practitioners and archaeologists to ensure these sites remain further undisturbed.

7.4 Impacts to Intangible Cultural Resources

Intangible cultural resources refer to those resources without physical form. The interviewees did not identify any traditional intangible cultural resources (i.e., hula, mele, or ʻōlelo noʻeau) currently associated with the project area, but many of the interviewees emphasized the importance of community in Makena. Kealahou Alika and Leahi Hall

identify the community itself, which was based on mutual knowledge and trust, as a cultural resource that has been impacted and diminished because of development projects. Leahi states that cultural resources are not just about physical sites or species, but about the relationships between people and place, between generations, and within the ecosystem. Suggested mitigation measures by interviewees to restore a sense of community in Makena include: 1) providing housing that allows residents to observe traditional natural phenomena like sunrise and sunset, enabling them to continue cultural practices of observation (kilo); 2) creating spaces where Native Hawaiian families can return to live in Makena; 3) implementing special tax rates for lineal descendants and kamaʻāina to help address the soaring property taxes that come with development, forcing Hawaiians from their ancestral lands; and 4) creating opportunities for cultural engagement, providing a mechanism for building relationships and cultural understanding among newer residents.

7.5 Impacts to Cultural Practices

The most frequently referenced cultural practices likely to be impacted by the project involve access to the ocean, namely fishing and limu picking. Contemporary scientific understanding highlights new threats to the fishing traditions of Makena. Rising ocean temperatures and acidification threaten the coral reef ecosystems that have sustained fishing communities for generations. A 2017 study by the National Oceanic and Atmospheric Administration found that some reefs in Maui experienced up to 50% coral bleaching during a 2015 warming event, with the south Maui coast (including Makena) among the affected areas.

Interviewees expressed concern about potential runoff from development, invasive species, overfishing, increased tourism, and shoreline erosion presenting additional challenges to marine ecosystems. The introduction of alien algae species like *Acanthophora spicifera* has changed nearshore habitats, while land-based pollution continues to stress reef systems. These challenges represent the newest chapter in the long history of adaptation that has characterized Makena's fishing traditions. Interviewee Kaʻōnohi Lee recalls seeing limu and ʻopihi frequently along the shores, but these species are no longer prevalent due to declining water quality and resource availability.

In response to these challenges, various community initiatives seek to revitalize traditional fishing knowledge and practices. Cultural practitioners, conservation organizations, and educational programs work to document, preserve, and transmit fishing traditions to new generations. These efforts recognize that TEK contains valuable insights for sustainable resource management in the face of modern environmental challenges.

Kaʻōnohi Lee, Eddie Chang, and Kalei Luʻuwai describe the various fishing techniques traditionally practiced in Makena, including hukilau for large gatherings and spearfishing

for sustenance. The beaches were once accessible to only a few families and locals, but the overpopulation and the increase in tourism has made it difficult to physically access traditional fishing sites at beach locations; overfishing and fishing as a sport for "trophies" rather than eating was also identified as Eddie Chang as a significant reason for diminished fishing practices in the area. Mitigation measures recommended by the interviewees to maintain the health of marine resources include: 1) learning from past developmental mistakes that led to vast run-off and sedimentation filling the bay with mud; 2) engaging with developers to encourage improvements in runoff management plans; 3) consulting with "true experts" who understand specific characteristics of Makena and understand the land's natural systems and streams; and 4) hiring locals who know the area and watching the water, ensuring it is potable to minimize environmental impacts.

Other potential mitigation would be establishing access to ocean resources for area descendants and practitioners. Improvement in the management of the beach and marine resources is critical to the preservation of ocean use by practitioners and descendants.

7.6 Cumulative and Indirect Impacts

Adverse cumulative and indirect impacts to cultural resources are often overlooked in CIAs, as they are difficult to assess. Cumulative impacts are cultural impacts that result from the incremental impacts of an activity when added to past, present, and reasonably foreseeable future actions and activities. Indirect impacts are impacts on cultural resources that are not a direct result of the project, but a secondary or tertiary result of the project. This section specifically responds to comments received during the scoping period related to settler colonialism.

Native Hawaiians in the Makena region have increasingly faced restricted access to lands and waters essential for practicing traditional and customary rights, including the gathering of medicinal plants, ceremonial observances, and subsistence fishing and gathering activities. These practices are rooted in a cultural framework that requires not only physical access to specific places but also ecological integrity and generational continuity of knowledge. Over the past century, historic land alienation—particularly following the Māhele and the expansion of ranching, tourism, and private development—has resulted in a widespread loss of access across both private and formerly public lands. As noted in interviews with area descendants such as Kaʻōnohi Lee and Keolahou Alika, this trend has led to a measurable decline in cultural practice, particularly among younger generations, due to the inability to access specific sites or gather required resources.

Multiple interviewees described ongoing efforts to access both shoreline areas and inland resources, noting that development, fencing, and land conversion have obstructed previously open pathways. In some cases, individuals reported being denied access to

areas they once frequented for generations. Others noted that even areas currently considered “publicly accessible”—such as beaches or trails—have become functionally inaccessible due to lack of parking, security enforcement, or over-tourism. The cultural practice of fishing in Mākena Landing, for instance, continues but is reportedly less common due to reduced fish abundance and recreational interference, while traditional kilo practices and ceremonial gatherings have been displaced to less ideal or alternative locations.

The concern articulated in this report is grounded in interviews with individuals who actively attempt to maintain their connection to place and perpetuate cultural practices but have encountered both legal and practical barriers. While some of these barriers stem from privatization and land use changes, it is important to note that under the Hawai‘i Supreme Court’s *Public Access Shoreline Hawai‘i (PASH)* decision and its progeny, Native Hawaiian traditional and customary practices are legally protected even on private lands, provided such practices are exercised in a manner consistent with traditionally recognized customs and do not cause substantial harm. Despite these protections, implementation remains uneven, and community members continue to report challenges accessing traditional sites—highlighting the need for clear legal, administrative, and voluntary access provisions as essential elements of meaningful cultural mitigation.

Quantifying the specific frequency of practice is inherently difficult due to the fluid and seasonal nature of Hawaiian cultural traditions. However, the cumulative narrative across interviews demonstrates a clear pattern of disruption, degradation, and displacement—effects that are not incidental but systemic, and that require equally systemic cultural protections and access guarantees if Native Hawaiian traditions are to meaningfully persist into the future.

Perhaps most concerning cumulative impact is the potential erosion of place-based knowledge—specialized ecological and cultural wisdom intimately tied to specific locations that cannot be preserved when those places are fundamentally altered. These impacts reflect core settler colonial patterns where Indigenous relationships to land are subordinated to Western concepts of property, development, and economic progress. The question becomes whether development can proceed without perpetuating colonial frameworks that prioritize land as commodity over land as cultural foundation, and whether planners can reconceptualize development approaches to center Native Hawaiian relationships with ‘āina rather than treating them as secondary considerations in a primarily economic venture.

Interviewee Keolahou Alika stresses that when it comes to marine resources, it is not about mitigation but restoration because the damage from siltation and pollution has

"already been done"; this perspective shifts the focus from prevention to restoration and accountability, recognizing the cumulative impacts of development in the area over time.

7.7 Ongoing Cultural Activities

The applicant has already implemented an extensive cultural and natural resource program that begins to redress some of the cumulative impacts identified by area descendants and kūpuna. These programs exist independently from this project but may be enhanced as part of the project mitigation.

Based on the challenges in quantifying the specific frequency of practice associated with Hawaiian cultural traditions, it may be appropriate to commission a cultural use plan, or similar such document, to research and document the history of practice in the area and establish access protocols appropriate to the region.

7.8 Mitigation and Best Management Practices

The following mitigation framework is grounded in the extensive cultural, ecological, and community-based knowledge presented in this Cultural Impact Assessment (CIA). Recognizing that Makena is not simply a geographic location but a dynamic cultural landscape, mitigation for the proposed Mākena Mauka Project must prioritize the protection and perpetuation of the deep-rooted practices, relationships, and rights identified in this study.

As affirmed throughout this CIA, traditional and customary practices in Makena remain vital to the identity, resilience, and continuity of Native Hawaiian cultural life. The impact of development on these practices, particularly when linked to cumulative harm and settler colonial histories, calls for a robust, multi-tiered mitigation plan that is not only legally compliant but ethically and culturally informed.

Community interviews, particularly with kūpuna and descendants with multi-generational ties to the region, provided a critical lens for evaluating project impacts. Interviewees expressed deep concern over continued disruption of access to traditional gathering and fishing areas, the degradation of marine resources due to coastal development, and the potential erasure of cultural memory embedded in the land. Several noted the cumulative impacts of historical land dispossession and increasing tourism pressure, which have already strained practices such as subsistence fishing and lāʻau lapaʻau. Some resources and practices, such as lei-making, kilo, and ceremonial observation, depend on visual viewplanes and specific species.

This CIA finds that the project has the potential to cause significant adverse effects on cultural resources and practices, but these impacts are mitigable. The project will continue

to refine mitigation strategies throughout the planning and entitlement processes. Some of these strategies include, but may not be limited to:

- Avoidance of known historic properties through project redesign, in coordination with SHPD;
- Preservation and restoration of native and culturally significant flora, including limu and wiliwili;
- Enhancement of public access to shoreline areas used for cultural fishing and gathering;
- Enhancement of cultural stewardship programming that integrates descendant and practitioner input;
- Enhancement of interpretive signage and traditional ecological education tied to site-specific moʻolelo.

The integrity of cultural practices relies on the continued availability of sites and species, many of which fall within or adjacent to the project boundaries. While HRS Chapter 6E and HAR §13-284 will guide formal consultation and archaeological review, it is recommended that the project's entitlements include enforceable cultural resource protection plans developed in partnership with Native Hawaiian stakeholders.

As articulated in this CIA, the impact of development is not limited to land use changes but extends to knowledge transmission, identity, and the very capacity for future generations to live as Hawaiians in their own homeland. Therefore, developing mitigation strategies as outlined above move beyond basic compliance to reflect an ethic of mālama ʻāina and aloha ʻāina as expressed by the people of Makena. Grounded in the testimony of cultural practitioners such as Kaʻōnohi Lee**,** CJ Elizares**,** Leahi Hall**,** Kalei Luʻuwai**,** and Kealahou Alika, this plan seeks to honor and uphold the living relationships that define Hawaiian culture.

Through proactive, sustained, and culturally grounded mitigation, the Mākena Mauka Project can become a model for regenerative cultural engagement in Hawaiʻi—one that recognizes the irreplaceable value of Hawaiian culture and seeks to cultivate genuine, reciprocal relationships between development and Indigenous stewardship. The measures proposed herein must be implemented in full to satisfy not only legal obligations under *Ka Paʻakai* and HRS Chapter 6E, but moral and cultural ones as well.

8.0 *Ka Paʻakai* Analysis

It has long been the law of the land that the State of Hawaiʻi has an "obligation to protect the reasonable exercise of customary and traditionally exercised rights of Hawaiians to the extent feasible" *Public Access Shoreline Hawaiʻi v. Hawaiʻi County Planning Commission ("PASH")* 79 Hawaiʻi 425, 450 n. 43, 903 P.2d 1246, 1271 n. 43 (1995). In 2000, in the *Ka Paʻakai* decision, the Court established a framework "to help ensure the enforcement of traditional and customary Native Hawaiian rights while reasonably accommodating competition private development interests." 94 Hawaiʻi 31, 35, 7 P.3d 1068, 1972 (2000). This analysis is used here to fulfill the goal of this CIA (**Section 1.4**). It is also used as guidance to state agencies in fulfulling their obligations under *Ka Paʻakai*.

It is also imperative to emphasize that the State may not delegate their obligations under the *Ka Paʻakai* decision to another party, including but not limited to the federal government. While the *Ka Paʻakai* decision was specific to a private developer, the facts of that case would be applicable to the situation at hand because the Court's reasoning for this decision and applicable precedent apply – the issue being that another entity would not have the same public accountability as the State. That is the case herein, the public accountability of the federal government is not equal to that of the State of Hawaiʻi. More specifically, the federal government is not bound to the obligations of the State as set forth under the Hawaiʻi State Constitution, which is the document from which the rights protected under *Ka Paʻakai* emanate.

Based on the guidelines set forth in *Ka Paʻakai*, the Hawaiʻi Supreme Court provided government agencies an analytical framework to ensure the protection and preservation of traditional and customary Native Hawaiian rights while reasonably accommodating competing private development, or other, interests. The Court has stated: "that in order to fulfill its duty to preserve and protect customary and traditional Native Hawaiian rights to the extent feasible, as required by Article XII, Section 7 of the Hawaiʻi Constitution, an administrative agency must, at minimum, make specific findings of fact and conclusions of law as to the following:

1) The identification of valued cultural, historical, or natural resources in the project area, including the extent to which traditional and customary Native Hawaiian rights are exercised in the project area.
2) The extent to which those resources—including traditional and customary Native Hawaiian rights—will be affected or impaired by the proposed action; and
3) The feasible action, if any, to be taken to reasonably protect Native Hawaiian rights if they are found to exist. *Ka Paʻakai*, 94, Hawaii at 47, 7 P.3d at 1084. Cited in *Matter of Contested Case Hearing Re Conservation District Use Application*

(CDUA) HA-3568 for the Thirty Meter Telescope at the Mauna Kea Science Reserve, Kaʻohe Mauka, Hāmākua, Hawaiʻi, 143 Hawaiʻi 379, 431 P.3d 752 (2018) ("*Mauna Kea II*").

To complete a thorough CIA that complies with statutory and case law, it is necessary to fully consider information available from, and provided by, Native Hawaiian cultural practitioners and cultural descendants from the project area. From thorough research, data was extrapolated that provides a comprehensive look at the cultural resources in this ʻāina. Through this research, the factors from *State v Hanapi* are met. These factors are: "to establish that his or her conduct is constitutionally protected as a native Hawaiian right, he or she must show, at minimum, the following three factors. First, he or she must qualify as a "native Hawaiian" within the guidelines set out in PASH . . . [as] "those persons who are 'descendants of native Hawaiians who inhabited the islands prior to 1778,' … regardless of their blood quantum." Second, once a defendant qualifies as a native Hawaiian, he or she must then establish that his or her claimed right is constitutionally protected as a customary or traditional native Hawaiian practice…. Finally, a defendant claiming his or her conduct is constitutionally protected must also prove that the exercise of the right occurred on undeveloped or "less than fully developed property." 89 Hawaiʻi 177, 185-86, 970 P.2d. 485, 493-94 (1998).

The *Ka Paʻakai* analysis is largely a legal analysis, as the applicable tests are legal standards. Therefore, a strong analysis is one conducted by someone with sufficient legal training. Additionally, at the core of a thoughtful *Ka Paʻakai* analysis is a comprehensive understanding of traditional and customary practices. In breaking down the Court's tests, it is important to the different elements that contribute to each test.

The first test – "The identification of valued cultural, historical, or natural resources in the project area, including the extent to which traditional and customary Native Hawaiian rights are exercised in the project area" – consists of two separate elements. First, the simple identification and existence of valued cultural, historical, or natural resources. These resources are tangible in nature. They can include sacred places, culturally valuable plants, or a religious or historic site. This survey sought to exhaustively identify the great multitude of resources that may exist in the project area or adjacent areas.

As to this test, this survey shows there are extensive cultural resources within the project area. Archaeological survey work will be applying *Ka Paʻakai* to historic sites and properties and will be formally assess through the HRS 6E-42 process, which is required for this project.

The second element of this first test is access. Access requires two things to occur. One is the existence of a resource. Whether a plant, an animal, a place, or site, the resource must exist in order a practitioner to access it. The second thing is physical access. This

includes, but it is not limited to, the ability to physically access a plant, animal, site, or location associated with a particular practice. This can also include the traditional and customary route or path taken to access the resource. This can also include cultural protocols that existed in accessing a resource. These are often temporal, in that access protocols can be at a certain time of day or year. Makahiki would be a good example of a traditional custom that has specific cultural protocols associated with access. In the case of Makahiki, the custom takes place at a certain time of year.

Therefore, the first test under *Ka Paʻakai* should include not only a listing of resources, but the identification of ways in which those resources are accessed and utilized in association with a traditional and customary practice.

According to scoping information and ethnographic data, kānaka have accessed the resources in Mākena for many generations.

Therefore, the second test – "The extent to which those resources—including traditional and customary Native Hawaiian rights—will be affected or impaired by the proposed action" – also looks at two separate elements. The first, does the proposed action and its alternatives have an adverse impact on the existence of resources? This would include the alteration, destruction, modification, or harm of sites, including biological resources, sacred places, burial sites, etc. It also includes a loss of species. Any adverse impact or harm to resources is alone an affect or impairment caused by the proposed action.

Under this element, adverse impacts to historic sites or culturally utilized plants would all be identified adverse impacts. Under this same element, any indirect or cumulative effects would create an adverse impact under *Ka Paʻakai* if those actions harmed resources. **Scoping data and ethnographic data indicate some of loss of resources, particularly through increased residential density.**

In addition to this, any action that impacts traditional and customary access to resources, even if there is not direct adverse impact to the resource itself, would result in an affect or impairment resulting from the proposed action. Therefore, the limitations on access that could result from development or use of the project area could create an adverse impact under *Ka Paʻakai.* **Based on ethnographic data collected, access to marine resources has been diminished as a result of multiple development projects in Mākena, leading to increased tourism and overpopulation.**

The third part of the *Ka Paʻakai* framework aims to identify "[t]he feasible action, if any, to be taken to reasonably protect Native Hawaiian rights if they are found to exist." Determining whether or not action has been suitably "feasible" is a matter for the State. These feasible actions could include continued access to the project as needed to conduct cultural practices. The impacts to historic sites will be addressed by SHPD.

Impacts, if any, will be addressed through HRS 6E and HAR 13-284 during the entitlement process, although avoidance of any historic sites is recommended. **The potential adverse effects can be avoided through the implementation of best management practices, which are identified in Section 7.0.**

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9.0 Conclusion

In Hawaiian culture, natural and cultural resources are largely viewed as being one and the same. Without the resources provided by nature, cultural resources could not and would not be procured. From a Hawaiian perspective, all natural and cultural resources are interrelated, and all natural and cultural resources are culturally significant. The kinship between Hawaiians and their land extends back across many generations, and it was the depth and intimacy of this relationship that enabled Hawaiians to thrive sustainability in the islands for hundreds of years prior to the arrival of Europeans. Therefore, Hawaiians are entitled to the pain and anguish they feel at the loss of their lands and resources.

This loss lies at the heart of Hawaiian struggles for traditional or customary access. Therefore, the obligation of the state to ensure that these rights are protected is much more than a legal obligation, as such rights are a necessity of indigenous human life. Recognition and respect for these rights also enables a more mutually respectful and beneficial relationship between the Planned Development and Hawaiians.

Act 50 was passed by the state recognizing:

> … the past failure to require native Hawaiian cultural impact assessments has resulted in the loss and destruction of many important cultural resources and has interfered with the exercise of native Hawaiian culture. The legislature further finds that due consideration of the effects of human activities on native Hawaiian culture and the exercise thereof is necessary to ensure the continued existence, development, and exercise of native Hawaiian culture (Act 50, SLH 2000).

The CIA is a construct of state law and a requirement of HRS Chapter 343. The legislative intent quoted above is critical to the due consideration of the effects the proposed action has and will have on cultural practices, because it specifies the importance of ensuring “the continued existence, development, and exercise” of culture. This recognizes that culture is not static; it is dynamic. It changes over time. Act 50 specifically calls for consideration of the effects a proposed action may have on the continued “development” of native Hawaiian culture. Which means it is insufficient to simply look back to historic practices. Considering effects to the continued development of culture means the state, specifically the governing state or county agency, as the accepting authority of the Chapter 343 Environmental Impact Statement (EIS), of which this CIA is a requirement.

Additionally, the State Environmental Review Program (ERP, formerly OEQC) offers specific guidelines for what elements and issues a CIA should address. The section of this CIA that addresses that element is also provided.

Table 2. ERP Compliance Requirements and Their Corresponding Sections in this Assessment

ERP notes that in addition to the content requirements for the draft EIS, which are set out in HAR §11-200.1 et seq., the assessment concerning cultural impacts should address, but not necessarily be limited to, the following matters:	
A. A discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints or limitations which might have affected the quality of the information obtained.	A detailed methodology section is provided in **Section 2.0**, *Methodology*.
B. A description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken.	A discussion of the effort to gather into from persons familiar with the area or other stakeholders is provided in **Section 2.6**, *Ethnographic Methodology*.
C. Ethnographic and oral history interview procedures, including the circumstances under which the interviews were conducted.	A discussion of procedures, including constraints or limitations, is provided in **Section 2.6**, *Ethnographic Methodology.*
D. Biographical information concerning the individuals and organizations consulted, their expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area.	Biographical information was provided for each interviewee in **Section 5.0**, *Oral Records, Interviews, and Consultations.*
E. A discussion concerning historical and cultural source materials consulted, the institutions and repositories searched and the level of effort undertaken. This discussion	A discussion of the materials consulted is provided in **Section 2.0**, *Methodology*. An extensive cultural and historical overview, which uses both Hawaiian and English

should include, if appropriate, the perspective of the authors, any opposing views, and any other relevant constraints, limitations or biases.	language resources is also provided in **Section 2.0**, *Methodology.*
F. A discussion concerning the cultural resources, practices and beliefs identified, and, for resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site.	In addition to the cultural and historical overview, an extensive discussion concerning cultural resources, practice and beliefs are provided throughout the document by subfield, specifically in **Section 3.0,** *Historic Background* and **Section 4.0**, *Cultural Resources*.
G. A discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area affected directly or indirectly by the proposed project.	A thorough discussion concerning the nature of traditional or customary practices and the significance of the cultural resources affected directly or indirectly by the proposed alternatives is provided in **Section 7.0**, *Impact Assessment*.
H. An explanation of confidential information that has been withheld from public disclosure in the assessment.	There was no confidential information withheld from public disclosure, except for personal emails, addresses, and phone numbers.
I. A discussion concerning any conflicting information regarding identified cultural resources, practices and beliefs.	There was no conflicting information regarding cultural resources, practices, or beliefs.
J. An analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place.	A thorough analysis is provided in **Section 7.0,** *Impact Assessment*.
K. A bibliography of references and attached records of interviews which were allowed to be disclosed.	References are included in **Section 10.0**, *References*.

The standard under which an EIS is considered sufficient is also well-established in Hawaii state case law. The court has held:

> …an EIS need not be exhaustive to the point of discussing all possible details bearing on the proposed action but will be upheld as adequate if it has been compiled in good faith and sets forth sufficient information to enable the decision-maker to consider fully the environmental factors involved and to make a reasoned decision after balancing the risks of harm to the environment against the benefits to be derived from the proposed action, as well as to make a reasoned choice between alternatives" *Price v Obayashi Hawaii Corp*, 81 Hawaii 171, 182 (1996), upheld in *Kaleikini v Yoshioka*, 283 P. 3d 60, 74 (2012).

It is the obligation of this CIA to disclose information as required under Act 50 sufficiently and in good faith such that the state may consider all impacts when acting as decision-maker to this proposed action. This assessment is not a policy document, nor does it intend to influence decision-making in any fashion. Rather, it has sought to document the complex, and often elusive, history of past and present cultural practices within the project area and larger region. It is ultimately the responsibility of the state to accept or reject the adequacy of this assessment, and then, if accepted, consider the information disclosed herein when deciding on the proposed action.

In applying *Ka Paʻakai*, cultural, historical, and natural resources have been identified in the project area. Traditional or customary Native Hawaiian rights do not appear to be currently exercised in the project area, but they are practiced in the nearby coastal areas. Implementing the recommendations provided in **Section 7.0** can avoid, minimize, or mitigate any adverse effects on these practices.

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Appendix I: Glossary of Hawaiian Terms

The following list of terms were used throughout this report. All definitions were compiled using Pukui and Elbert's *Hawaiian Dictionary* (1986).

ʻAʻā	Rough and stony lava type.
Ahu	Heap, pile, collection, mound, mass; altar, shrine, cairn; a traplike stone enclosure made by fishermen for fish to enter; laid, as the earth oven.
Ahupuaʻa	Land division usually extending from the uplands to the sea, so called because the boundary was marked by a heap (ahu) of stones surmounted by an image of a pig (puaʻa), or because a pig or other tribute was laid on the altar as tax to the chief.
ʻĀina	Land, earth.
ʻĀina Aupuni	Government lands.
ʻĀina Konohiki	Konohiki lands.
ʻĀina Lei Aliʻi	Crown lands.
Akua	1. God, goddess, spirit, ghost. 2. Divine, supernatural, godly.
Ala	Path, road, trail.
Ala hele	Pathway, route, road, way to go, itinerary, trail, highway, means of transportation.
Ala loa	Highway, main way. Ancient island trails.
Alanui Aupuni	Government roads.
Aliʻi	1. Chief, chiefess, ruler, monarch. 2. Royal, regal. 3. To act as chief, reign.
Aliʻi ʻai ahupuaʻa	Chief who controls the ahupuaʻa resources.
Aliʻi ʻai moku	Chief who rules a moku (district).
Aliʻi nui	High chief.
Aliʻi wahine	Female chiefs.
Aloha	Love, affection, compassion, mercy, sympathy, pity, kindness, sentiment, grace, charity
ʻĀpana	Piece, slice, portion, fragment, section, segment, installment, part, land parcel, lot, district, sector, ward, precinct; chop, as of lamb. A kuleana, land division, may consist of several ʻāpana.
ʻAumakua	Family or personal gods, deified ancestors who might assume the shape of sharks, owls, hawks, dogs, plants, etc. A symbiotic relationship existed; mortals did not harm or eat them, and the ʻaumakua warned or reprimanded mortals in dreams, visions, and calls.
ʻAumākua	Plural of ʻaumakua.

ʻAuwai	Irrigation ditch, canal.
Haʻi moʻolelo	Storytelling performance.
Hālau	1. Long house, as for canoes or hula instruction; meeting house. 2. Large, numerous; much.
Hale	House, building, institution, lodge, station, hall.
Hale pili	House thatched with pili grass.
Heiau	Pre-Christian place of worship, shrine. Some heiau were elaborately constructed stone platforms, other simple earth terraces.
Honu	General name for turtle and tortoise.
Honua ola	Living biocultural landscape.
Hoʻokupu	Tribute, tax, ceremonial gift-giving to a chief as a sign of honor and respect; to pay such tribute; church offering.
Hula	A Polynesian dance form accompanied by chant or song.
ʻIke kūpuna	Ancestral knowledge.
ʻIli	Land section, next in importance to ahupuaʻa and usually a subdivision of an ahupuaʻa.
ʻIli kūpono	A nearly independent ʻili land division within an ahupuaʻa, paying tribute to the ruling chief and not to the chief of the ahupuaʻa. Transfer of the ahupuaʻa from one chief to another did not include the ʻili kūpono located within its boundaries.
Iwi	Bone, carcass. The bones of the dead, considered the most cherished possession, were hidden, and hence there are many figurative expressions with iwi meaning life, old age.
Kahuna	Priest, sorcerer, magician, wizard, minister, expert in any profession (whether male or female).
Kalana	Division of land smaller than a moku or district; county
Kalo	Taro (*Colocasia esculenta*), a kind of aroid cultivated since ancient times for food, spreading wildly from the tropics of the Old World. In Hawaiʻi, taro has been the staple from earliest times to the present, and here its culture developed greatly, including more than 300 forms. All parts of the plant are eaten, its starchy root principally as poi, and its leaves as lūʻau.
Kamaʻāina	1. Native-born, one born in a place, host. 2. Native plant. 3. Acquainted, familiar.
Kanaka	Human being, man, person, individual, party, mankind, population.
Kanaka Hawaiʻi	Hawaiians.
Kānāwai	Law, code, rule, statute, act, regulation, ordinance, decree, edict.
Kāne	Male, husband, male sweetheart, man; brother-in-law of a woman.
Kanikau	1. Dirge, lamentation, chant of mourning, lament. 2. To chant, wail, mourn.

Kapu	1. Taboo, prohibition. 2. Special privilege or exemption from ordinary taboo. 3. Sacredness, prohibited, forbidden, sacred, holy, consecrated. 4. No trespassing, keep out.
Kēhau	Dew, mist, dewdrop. Name of a gentle land breeze, as of West Hawai'i.
Ki'i	Image, statue, picture, photograph, drawing, diagram, illustration, likeness, cartoon, idol, doll, petroglyph; features, as of a face; plans, as for a house; carved, as end of an 'auamo pole.
Kilo i'a	A man who observes fish movements from a high place and directs fishermen; to so act.
Kino lau	Many forms taken by a supernatural body, as Pele, who could at will become a flame of fire, a young girl, or an old hag.
Kō	Sugar cane (*Saccharum officinarum*), a large unbranched grass brought to Hawai'i by early Polynesians as a source of sugar and fiber.
Ko'a	1. Fishing grounds, usually identified by lining up with marks on shore. 2. Shrine, often consisting of circular piles of coral or stone, built along the shore or by ponds or streams, used in ceremonies as to make fish multiply; also built on bird islands, and used in ceremonies to make birds multiply.
Kona	Leeward sides of the Hawaiian Islands.
Konohiki	Headman of an ahupua'a land division under the chief; land or fishing rights under control of the konohiki; such rights are sometimes called konohiki rights.
Ko'olau	Windward sides of the Hawaiian Islands.
Kuahu	Altar. Family shrine.
Kula	1. Plain, field, open country, pasture. 2. School, academy; to teach school, go to school; to hold school or class sessions
Kuleana	Right, privilege, concern, responsibility, title, business, property, estate, portion, jurisdiction, authority, liability, interest, claim, ownership, tenure, affair, province.
Kumu	Teacher, tutor, manual, primer, model, pattern.
Kumu hula	Hula teacher.
Kupua	Demigod or culture hero, especially a supernatural being possessing several forms (as Kama-pua'a and Laenihi); one possessing mana; to possess kupua (magic) powers.
Kupuna	Grandparent, ancestor, relative or close friend of the grandparent's generation, grandaunt, granduncle.
Kūpuna	Plural of kupuna.

Limu	A general name for all kinds of plants living under water, both fresh and salt, also algae growing in any damp place in the air, as on the ground, on rocks, and on other plants; also mosses, liverworts, lichens.
Loʻi	Irrigated terrace, especially for taro, but also for rice and paddy.
Loko iʻa	Traditional Hawaiian fishpond.
Lole	Cloth, clothes, costume, dress, gown; to wear clothes.
Māhele ʻĀina	Land Division.
Mahi ʻai	Farmer, planter; to farm, cultivate; agricultural.
Makaʻāinana	Commoner, populace, people in general.
Makai	On the seaside, toward the sea, in the direction of the sea.
Mālama	To take care of, tend, attend, care for, preserve, protect, beware, save, maintain.
Manō	Sharks.
Manō iʻa	Ordinary shark.
Manō kanaka	Shark thought to be born of a human mother and sired by a shark god, or by a deified person whose spirit possesses a shark or turns into a shark.
Mauka	Inland, upland, towards the mountain.
Mele	1. Song, anthem, or chant of any kind. 2. Poem, poetry. 3. To sing, chant.
Mele ʻāina	Songs of the land.
Mōʻī	King, sovereign, monarch, majesty, ruler, queen.
Moku	1. District, island, islet, section, forest, grove, clump, fragment. 2. To be cut, severed, amputated, broken in two.
Mokupuni	Island.
Moʻo	Lizard, reptile of any kind, dragon, serpent.
Moʻolelo	Story, tale, myth, history, tradition, literature, legend, journal, log, yard, fable, essay, chronicle, record, article.
Moʻowahine	Female lizard deity.
Nīʻau-piʻo	Offspring of the marriage of a high-born brother and sister, or half-brother and half-sister.
ʻOhana	Family, relative, kin group; related.
ʻOkana	District or subdistrict, usually comprising several ahupuaʻa.
ʻŌlelo noʻeau	Proverb, wise saying, traditional saying.
Oli	Chant that was not danced to, especially with prolonged phrases chanted in one breath, often with a trill at the end of each phrase; to chant thus.
ʻŌʻō	Digging stick, digging implement, spade.
Pae ʻāina	Group of islands, archipelago.

Pāhoehoe	Smooth, unbroken lava type.
Paniolo	Cowboy (sometimes called paniolo pipi to distinguish from paniolo). 2. hoʻo.pani.olo To be like a cowboy or pretend to be a cowboy.
Pāʻū	Woman's skirt, sarong; skirt worn by women horseback riders
Piʻo	Marriage of full brother and sister of nīʻaupiʻo rank, presumably the highest possible rank. Their offspring had the rank of naha, which is less than piʻo but probably more than nīʻaupiʻo. Later piʻo included marriage with half-sibling.
Pōhaku	Rock, stone, mineral, tablet.
Pono	Goodness, uprightness, morality, moral qualities, correct or proper procedure, excellence, well-being, prosperity, welfare, benefit, behalf, equity, sake, true condition or nature, duty.
Pueo	Hawaiian short-eared owl (*Asio flammeus sandwichensis*), regarded often as a benevolent ʻaumakua.
Pūnāwai	Water spring.
Puʻu	Any kind of a protuberance from a pimple to a hill: hill, peak, cone, hump, mound, bulge, heap, pile
ʻUala	The sweet potato (*Ipomoea batatas*), a perennial, wide-spreading vine, with heart-shaped, angled, or lobed leaves and pinkish-lavender flowers. The tuberous roots are a valuable food, and they vary greatly in many ways, as in color and shape. Though of South American origin, the plant has been a staple food since ancient times in many parts of Polynesia, as well as in some other regions.
ʻUlu	The breadfruit (Artocarpus altilis), a tree perhaps originating in Malaysia and distributed through tropical Asia and Polynesia. It belongs to the fig family, and is grown for its edible fruits, sometimes for ornament. The leaves are large, oblong, more or less lobed; fruits are round or oblong, weighing up to 4.5 kilos, when cooked tasting something like sweet potatoes.
Wahi pana	A sacred and celebrated/legendary place.
Wahine	Woman, lady, wife; sister-in-law, female cousin-in-law of a man.
Wāhine holo lio pāʻū	Female pāʻū riders.
Wai	Water, liquid or liquor of any kind other than sea water.
Waiwai	Goods, property, assets, valuables, value, worth, wealth, importance.
Wao	1. Realm. 2. A general term for inland region usually forested but not precipitous and often uninhabited.

APPENDIX T

MARKET STUDY

MARKET STUDY

Mākena Golf & Beach Club – Mauka Redevelopment

WAILEA-MĀKENA, HAWAII

SUBMITTED TO:

Mr. Kris Wilhelm
AREG AC Makena Propco LLC
2000 Avenue of the Stars, 12th Floor
Los Angeles, California 90067

+1 (808) 495-2436

PREPARED BY:

HVS Consulting & Valuation
Division of TS Worldwide, LLC
1615 Foxtail Drive, Suite 230
Loveland, Colorado 80538

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April 9, 2025

Mr. Kris Wilhelm
AREG AC Makena Propco LLC
2000 Avenue of the Stars, 12th Floor
Los Angeles, California 90067

Re: Mākena Golf & Beach Club – Mauka Redevelopment
Wailea-Mākena, Hawaii
HVS Reference: 2023-02-0435

Dear Mr. Wilhelm:

Pursuant to your request, we herewith submit our market study report pertaining to the Mākena Golf & Beach Club – Mauka Redevelopment. We have inspected the real estate and analyzed the market conditions in the Wailea-Mākena, Hawaii, area.

As currently envisioned, the 1,043.71-acre total project (TMK: (2)2-1-005:108, (2)2-1-006:036 and 057, (2)2-1-007:068, 092 and 093, (2)2-1-008:078, 079, 081, and 090, and (2)2-1-031:036(Por.)), of which is 473 acres of residential use will contain 652 residential units as follows:

- 180 rural and single-family residential lots;
- 363 market-rate, multi-family residential units;
- 109 residential workforce housing units (15 single-family and 94 multi-family)

In addition to the residential development, the project will also include roughly 135,000 square feet of operational buildings as follows:

- ~48,000 square feet: restaurant, clubhouse, kitchen, locker rooms, fitness, back-of-house uses
- ~63,000 square feet: golf maintenance, staff center, golf operations, receiving area uses
- ~24,000 square feet: arrival hale, farm operations, restroom uses

While the scope of this market study is limited to the residential component of the Mauka Redevelopment, the planned operational buildings are expected to be complementary to and supportive of future residential development.

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Loveland, Colorado 80538
+1 (970) 305-2229
www.hvs.com

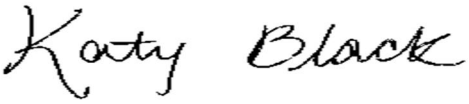
Superior results through unrivaled hospitality intelligence. Everywhere.

We hereby certify that we have no undisclosed interest in the property, and our employment and compensation are not contingent upon our findings. This study is subject to the comments made throughout this report and to all assumptions and limiting conditions set forth herein.

Sincerely,
TS Worldwide, LLC



John Berean
Managing Director
Hawaii & Northern California Region Leader



Katy Black, MAI
Managing Director
Denver Region Leader

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1. Executive Summary

Subject of the Market Study

The subject of the study ("Mākena Mauka") comprises roughly 1,043.71 acres of noncontiguous, mostly undeveloped lands located mauka of Mākena Alanui Road within the greater 1,800-acre Mākena Golf & Beach Club. Of the total acreage, 473 acres will be proposed for residential development. The subject is adjacent to the existing 18-hole Mākena North Golf Course and former Mākena South Golf Course. The holding stretches the lower western flank of Haleakala, ranging from nominal to moderately-sloping terrain, affording unobstructed views of Kahoʻolawe, Molokini, Lanaʻi, and the Pacific Ocean.

The 1,800-acre Mākena Golf & Beach Club is a redevelopment of the former Maui Prince Hotel & Resort. The greater development currently features Maluaka Estates (custom oceanfront lots ranging from 0.5 to 0.75 acres), Kula Villas (4-bedroom villas overlooking the Mākena Beach Club), Beach Cottages (4- to 4.5-bedroom, two-story cottages), Beach Club Residences (1- to 3-bedroom condominiums atop the Mākena Beach Clubhouse), and Molokini Residences (4- to 4.5-bedroom, two-story residences). Amenities within the resort community include two clubhouses, an organic farm, sports courts, and the 18-hole Mākena North Golf Course. Kaʻeo, a 47.15-acre mixed-use development within the Mākena Golf & Beach Club, is currently under construction. This low-impact, low-density project includes 32 single-family custom lots, 30 multi-family units (including 4 workforce units), 18 single-family cottages, 14 condominiums, 9 transient vacation rentals, and 27,300 square feet of commercial space.

The Mākena Mauka project site is divided between "Urban" and "Agricultural" within the State Land Use (SLU) District Boundaries, and is classified as primarily "Urban" within the Maui Island Plan Directed Growth Map for South Kihei/Wailea.

The current master plan is shown below, followed by a summary of the land plan development. The Mākena Mauka development is expected to be built out over the next several decades, with an anticipated pre-sale commencement date in 2029.

MĀKENA MAUKA MASTER PLAN

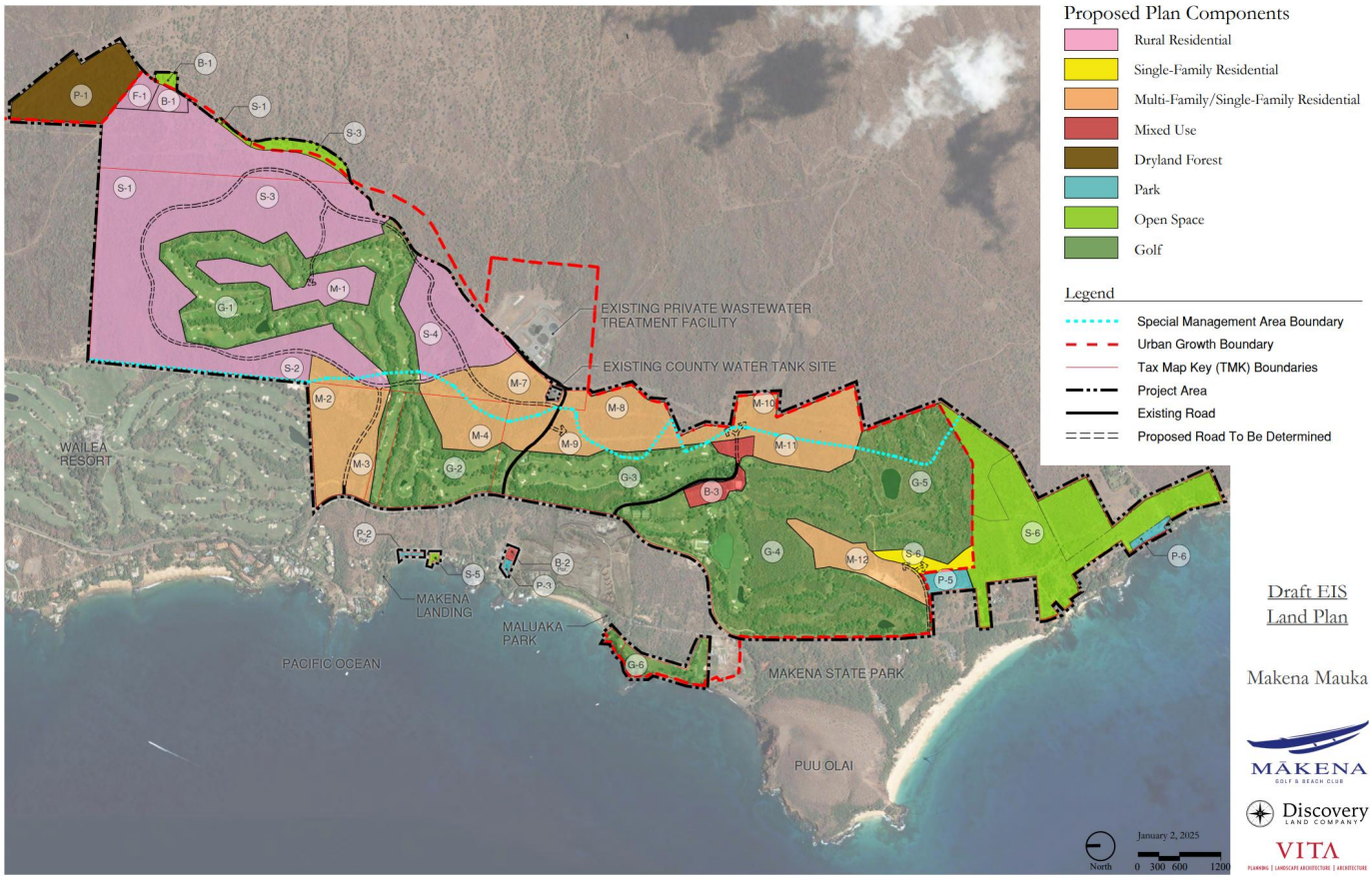


FIGURE 1-1 PROPOSED LAND PLAN DEVELOPMENT SUMMARY – MĀKENA MAUKA

Development "Parcel"	Approximate Area of Residential Use (Acres)	Proposed Residential Use
B-1	3.7	Rural & Single-Family Residential Lots
F-1	3.9	Rural & Single-Family Residential Lots
B-3	9.8	Mixed-Use Multi-Family Residential
M-1	22.1	Rural & Single-Family Residential Lots
M-2*	22.5	Multi-Family/Single-Family Residential
M-3*	19.0	Multi-Family Residential
M-4	18.9	Multi-Family/Single-Family Residential
M-7	27.8	Multi-Family/Single-Family Residential
M-8	12.8	Multi-Family/Single-Family Residential
M-9	22.9	Multi-Family/Single-Family Residential
M-10	24.4	Multi-Family Residential
M-11	14.9	None
M-12	18.3	Multi-Family Residential
S-1	93.6	Rural & Single-Family Residential Lots
S-2	7.3	Rural & Single-Family Residential Lots
S-3	107.0	Rural & Single-Family Residential Lots
S-4	38.1	Rural & Single-Family Residential Lots
S-6 (Portion)	6.0	Rural & Single-Family Residential Lots
Totals	**473.0**	

**Includes 109 residential workforce housing units.*

The Mākena Mauka development will transform a property that is:

- underutilized.
- located in a resort destination area, consistent with the general and community plans.
- in an area serviced by existing infrastructure and utilities.
- within a desirable area of the regional directed urban growth boundary.

Actualization of the proposed plan will create a regional asset providing:

- a wide variety of residential product, from multi-family buildings to vacant, rural residential lots.

- workforce housing units.

- a sustainable and regenerative community complementary with the existing Mākena Golf & Beach Club and in attunement with the surrounding environment.

The project is anticipated to attract significant new capital investment, create jobs in construction and on-going business activity, and further growth of the Maui economy. This will in turn generate enhanced employment and business opportunities for island residents and companies, while further expanding the tax base for the state and county.

From a market overview perspective, the proposed development will have the necessary attributes to be compatible with, and competitive within, the greater Maui real estate sector:

- *It is within an expanding, high-demand area.* Kihei-Mākena is the third-largest residential community on the island of Maui and has historically attracted significant resort development, inclusive of both commercial and residential. Given the warm, sunny climate and pristine beaches in Kihei-Mākena, the demand for residential units in the area is very strong, and as home to the popular Wailea Resort development, it will remain a desirable, competitive market.

- *In concert with market trends.* Master-planned developments have been part of the market in Hawaii for several decades, and they have generally provided higher-quality, more desirable housing and lifestyle opportunities than in standard subdivisions. Mākena Mauka represents a reimagined resort development, characterized as both low-density and low-impact, and includes both onsite workforce housing and workforce housing credits.

- *Maximize the reasonable development potential of a well-located parcel.* Given the superior locational attributes of the subject property, within the context of an expanding Kihei-Mākena development area, and the housing and economic benefits which will flow to Maui from the project, Mākena Mauka will achieve both market and general community objectives.

- *Mākena Mauka is representative of the highest and best use of the property.*

HVS has been engaged to analyze the proposed Mākena Mauka master plan from a real estate market perspective and to identify and quantify probable market and economic impacts associated with its development in light of competitive, regional, prevailing and forecast trends to answer the following basic study questions:

1. Is there sufficient demand to absorb the subject community during a reasonable exposure period given competing developments and projected statewide/regional market trends?

2. Will the community be an appropriate use of the underlying site relative to market needs?

Developer

Discovery Land Company, in partnership with ATC Mākena Holdings, is leading the redevelopment of Mākena Golf & Beach Club. Established in 1994, Discovery Land Company has founded some 25 international and national resorts. These communities include The Summit in Las Vegas, Troubadour in Nashville, Driftwood in Austin, Chileno Bay in Cabo San Lucas, and Kūkiʻo Golf and Beach Club on the Big Island of Hawaii. These enclaves seek to incorporate opportunities for golf and outdoor activities within comfortable family residential settings.

Pertinent Dates

The subject site was inspected by John Berean on April 26, 2023. Our initial market research and analysis was conducted in 2023; our research and analysis were updated for this assignment in January 2025. Katy Black, MAI, participated in the research for this assignment and assisted in the report's preparation.

Scope of Work

The methodology used to develop this study is based on the market research and valuation techniques set forth in the textbooks authored by Hospitality Valuation Services for the American Institute of Real Estate Appraisers and the Appraisal Institute, entitled *The Valuation of Hotels and Motels,*[1] *Hotels, Motels and Restaurants: Valuations and Market Studies,*[2] *The Computerized Income Approach to Hotel/Motel Market Studies and Valuations,*[3] *Hotels and Motels: A Guide to Market Analysis, Investment Analysis, and Valuations,*[4] and *Hotels and Motels – Valuations and Market*

[1] Stephen Rushmore, *The Valuation of Hotels and Motels*. (Chicago: American Institute of Real Estate Appraisers, 1978).
[2] Stephen Rushmore, *Hotels, Motels and Restaurants: Valuations and Market Studies*. (Chicago: American Institute of Real Estate Appraisers, 1983).
[3] Stephen Rushmore, *The Computerized Income Approach to Hotel/Motel Market Studies and Valuations*. (Chicago: American Institute of Real Estate Appraisers, 1990).
[4] Stephen Rushmore, *Hotels and Motels: A Guide to Market Analysis, Investment Analysis, and Valuations* (Chicago: Appraisal Institute, 1992).

Studies,[5] as well as in accordance with the Uniform System of Accounts for the Lodging Industry (USALI).

1. All information was collected and analyzed by the staff of TS Worldwide, LLC. Information such as historical financial statements, site plans, and floor plans, as applicable, were supplied by the client. Other sources of information included Maui County Planning Department, Maui Board of Realtors, Hawaii Information Services, and data from our files.
2. The subject site was evaluated from the viewpoint of its utility for residential development. We reviewed adjacent uses, regional and local accessibility attributes, and visibility characteristics. The subject site was personally inspected by our firm specifically for this assignment.
3. Existing and proposed residential developments that are deemed competitive are researched to provide an indication of current demand.
4. Future demand for the proposed residential development was determined via a review of historical and comparable residential sales, interviews with officials of business and government, and economic and demographic trends.
5. A conclusion in regards to appropriate use, demand, and absorption is made.

[5] Stephen Rushmore and Erich Baum, *Hotels and Motels – Valuations and Market Studies.* (Chicago: Appraisal Institute, 2001).

2. Market Area Analysis

The economic vitality of the market area and neighborhood surrounding the subject property is an important consideration in forecasting demand and income potential. The purpose of the market area analysis is to review available economic and demographic data to determine whether the local market will undergo economic growth, stabilize, or decline.

Market Area Definition

The subject property is located in the census-designated place (CDP) of Wailea-Mākena, the County of Maui, and the State of Hawaii. Maui County includes all three islands of Maui, Lana'i, and Kaho'olawe, and the majority of the island of Moloka'i. The seat of Maui County is Wailuku, which is located on the island of Maui. Maui is the second largest of the Hawaiian Islands and is the third most populated behind Oahu and Hawai'i Island. Maui is often referred to as the "Valley Isle" because of the large isthmus between its northwestern and southeastern volcanoes and the numerous large valleys carved into both mountains. West Maui, with the sprawling beaches and upscale hotels of Ka'anapali and the historic whaling town of Lahaina, is one of Maui's major resort areas. South Maui is home to the island's other main resort district, Wailea. Furthermore, the town of Kihei also offers affordable alternatives to the resort area of Wailea. The tropical north shore of Maui does not offer hotels; however, visitors can choose from a collection of bed-and-breakfast inns, as well as rental homes. Temperatures on Maui range from 70 to 80 degrees Fahrenheit year-round, although the slopes of Haleakala Crater often experience lows near 40 degrees Fahrenheit.

The Hawaiian Islands form a chain that extends more than 1,600 miles across the mid-Pacific Ocean. These islands are either volcanic in nature or small coral atolls; combined, they have an aggregate land area of approximately 6,425 square miles, of which roughly 750 miles are along the coastline.

Together, Hawaii's eight major islands total roughly 4,112,000 acres, with the six primary islands accounting for approximately 98% of this area. In order of descending size, the six primary islands are Hawai'i, Maui, O'ahu, Kaua'i, Moloka'i, and Lana'i. The seventh-largest island, Ni'ihau, is privately owned. Honolulu, the state's capital and largest city, is located on the island of O'ahu, approximately 2,400 miles southwest of San Francisco and the United States mainland.

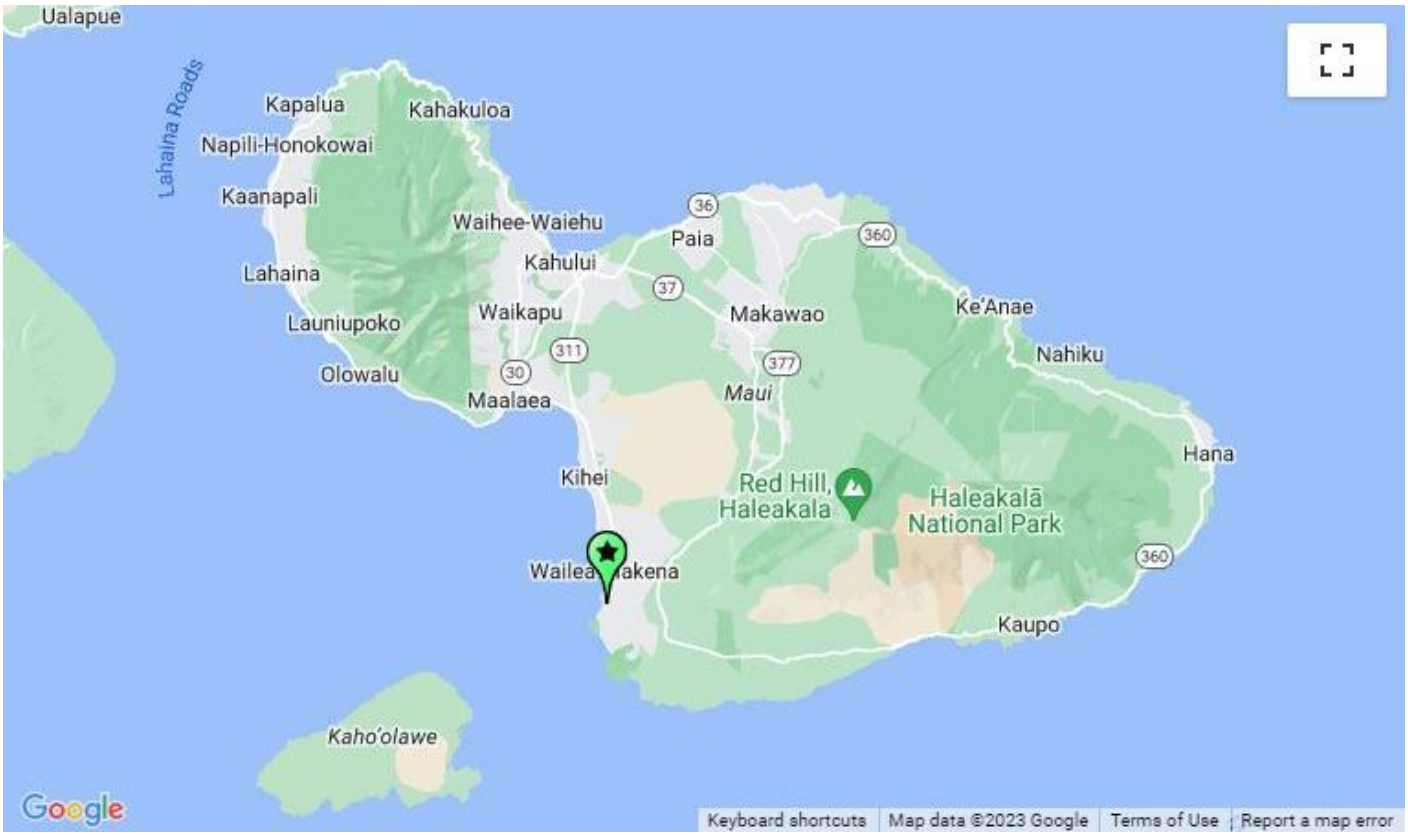
Due to the volcanic nature of the major islands, much of the state's total land area is unsuitable for development. Mountain ranges, steeply sloping areas, gulches, and barren lava flows constitute a large part of Hawaii's acreage. Of the four major

populated islands—O'ahu, Hawai'i, Maui, and Kaua'i—Hawai'i is the only one with more than half (76.0%) of its land area at less than a 10% slope; however, large tracts of its relatively level areas consist of extensive lava flows.

Compounding the land-use limitations imposed by the islands' physical characteristics is the fact that roughly 50% of all land is state or federal government occupied, while another 20% is collectively held by eight major private owners, each of whom possessed between approximately 29,000 and 363,000 acres in 2018. According to the State of Hawaii Office of Planning, of the roughly four million land acres comprising Hawaii's six major islands, about 48% is designated as conservation land, 47% is designated as agricultural land, and only 5% has been put to urban use. This limited availability of, and resultant desirability for, land creates inherent value in Hawaii real estate.

The subject property's market area can be defined by its Metropolitan Statistical Area (MSA): Kahului-Wailuku-Lahaina, HI MSA. The following exhibit illustrates the market area.

MAP OF MARKET AREA



Economic and Demographic Review

A primary source of economic and demographic statistics used in this analysis is the *Complete Economic and Demographic Data Source* published by Woods & Poole Economics, Inc.—a well-regarded forecasting service based in Washington, D.C. Using a database containing more than 900 variables for each county in the nation, Woods & Poole employs a sophisticated regional model to forecast economic and demographic trends. Historical statistics are based on census data and information published by the Bureau of Economic Analysis. Projections are formulated by Woods & Poole, and all dollar amounts have been adjusted for inflation, thus reflecting real change.

These data are summarized in the following table.

FIGURE 2-2 ECONOMIC AND DEMOGRAPHIC DATA SUMMARY

					Avg. Annual Compounded Chg.		
	2010	2020	2022	2027	2010-20	2010-22	2022-27
Resident Population (Thousands)							
Maui + Kalawao County	155.1	164.7	165.8	173.3	0.6 %	0.6 %	0.9 %
State of Hawaii	1,364.0	1,451.9	1,451.5	1,499.5	0.6	0.5	0.7
United States	309,327.1	331,501.1	334,193.8	345,453.9	0.7	0.6	0.7
Per-Capita Personal Income*							
Maui + Kalawao County	$37,075	$47,527	$49,085	$54,551	2.5	2.4	2.1
State of Hawaii	43,454	51,104	52,062	56,789	1.6	1.5	1.8
United States	42,497	53,178	53,658	58,274	2.3	2.0	1.7
W&P Wealth Index							
Maui + Kalawao County	91.8	89.2	93.4	95.1	(0.3)	0.1	0.4
State of Hawaii	104.3	96.1	98.0	98.3	(0.8)	(0.5)	0.1
United States	100.0	100.0	100.0	100.0	0.0	0.0	0.0
Food and Beverage Sales (Millions)*							
Maui + Kalawao County	$575	$675	$889	$991	1.6	3.7	2.2
State of Hawaii	3,501	4,303	5,634	6,175	2.1	4.0	1.9
United States	475,345	571,525	755,072	840,450	1.9	3.9	2.2
Total Retail Sales (Millions)*							
Maui + Kalawao County	$2,932	$3,700	$4,265	$4,470	2.4	3.2	0.9
State of Hawaii	21,043	25,218	29,067	30,129	1.8	2.7	0.7
United States	4,385,184	5,481,467	6,257,974	6,489,951	2.3	3.0	0.7

* Inflation Adjusted

Source: Woods & Poole Economics, Inc.

The U.S. population grew at an average annual compounded rate of 0.6% from 2010 through 2022. The county's population has grown more slowly than the nation's population; the average annual growth rate of 0.3% between 2010 and 2022 reflects a gradually expanding area. Per-capita personal income increased slowly, at 1.8% on average annually for the county between 2010 and 2022. Local wealth indexes have remained stable in recent years, registering a high 154.9 level for the county in 2022.

Food and beverage sales totaled $889 million in the county in 2022, versus $575 million in 2010. This reflects a 4.2% average annual change. The pace of growth is anticipated to be 1.6% through 2027. The retail sales sector demonstrated an annual increase of 2.2% from 2010 to 2022. An increase of 0.2% average annual change is expected in county retail sales through 2027.

Workforce Characteristics

The characteristics of an area's workforce provide an indication of the type and amount of transient visitation likely to be generated by local businesses. Sectors such as finance, insurance, and real estate (FIRE); wholesale trade; and services produce a considerable number of visitors who are not particularly rate sensitive. The government sector often generates transient room nights, but per-diem reimbursement allowances often limit the accommodations selection to budget and mid-priced lodging facilities. Contributions from manufacturing, construction, transportation, communications, and public utilities (TCPU) employers can also be important, depending on the company type.

The following table sets forth the county workforce distribution by business sector in 2010, 2020, and 2022, as well as a forecast for 2027.

FIGURE 2-3 HISTORICAL AND PROJECTED EMPLOYMENT (000S)

Industry	2010	Percent of Total	2020	Percent of Total	2022	Percent of Total	2027	Percent of Total	Avg. Annual Compounded Chg. 2010-2020	2020-2022	2022-2027
Farm	2.6	2.7 %	1.7	1.9 %	1.7	1.5 %	1.7	1.3 %	(3.9) %	(0.1) %	(0.6) %
Forestry, Fishing, Related Activities And Other	1.0	1.0	0.6	0.7	0.5	0.5	0.5	0.4	(4.8)	(7.6)	(1.5)
Mining	0.2	0.2	0.0	0.1	0.0	0.0	0.0	0.0	(13.2)	(1.1)	(0.4)
Utilities	0.5	0.5	0.5	0.6	0.6	0.5	0.6	0.5	1.4	2.3	0.9
Construction	4.6	4.9	6.2	6.8	6.6	5.8	6.8	5.4	3.0	2.5	0.8
Manufacturing	1.6	1.7	1.6	1.7	1.7	1.5	1.8	1.4	0.1	4.3	0.4
Total Trade	12.7	13.5	12.4	13.5	13.9	12.4	14.9	11.8	(0.3)	6.1	1.4
Wholesale Trade	2.0	2.1	1.9	2.0	2.1	1.8	2.2	1.7	(0.6)	5.3	1.2
Retail Trade	10.7	11.4	10.5	11.5	11.9	10.5	12.8	10.0	(0.2)	6.2	1.4
Transportation And Warehousing	3.0	3.1	4.1	4.5	5.9	5.2	7.3	5.8	3.3	20.0	4.4
Information	1.0	1.1	0.7	0.7	0.8	0.7	0.8	0.6	(3.9)	6.5	0.6
Finance And Insurance	2.0	2.2	2.1	2.3	2.1	1.9	2.3	1.8	0.3	0.8	1.4
Real Estate And Rental And Lease	5.9	6.2	6.2	6.8	7.5	6.7	8.4	6.6	0.6	9.6	2.3
Total Services	47.9	51.0	45.6	49.7	61.0	54.1	71.1	56.0	(0.5)	15.7	3.1
Professional And Technical Services	3.9	4.2	4.4	4.8	4.8	4.3	5.3	4.2	1.2	4.3	1.8
Management Of Companies And Enterprises	0.4	0.4	0.2	0.2	0.3	0.3	0.3	0.2	(6.5)	24.2	2.2
Administrative And Waste Services	7.5	8.0	6.7	7.3	8.6	7.7	10.0	7.9	(1.1)	13.5	2.9
Educational Services	1.5	1.6	1.8	1.9	2.2	1.9	2.7	2.1	1.7	11.4	4.1
Health Care And Social Assistance	6.0	6.4	9.3	10.1	10.7	9.5	12.9	10.1	4.5	7.1	3.8
Arts, Entertainment, And Recreation	4.2	4.5	3.1	3.3	4.3	3.8	5.0	4.0	(3.1)	18.5	3.1
Accommodation And Food Services	18.7	19.9	14.0	15.3	22.9	20.3	27.1	21.3	(2.8)	27.7	3.4
Other Services, Except Public Administration	5.8	6.2	6.1	6.6	7.2	6.4	7.9	6.2	0.4	8.8	1.9
Total Government	11.0	11.7	9.9	10.8	10.4	9.2	10.7	8.4	(1.0)	2.3	0.6
Federal Civilian Government	1.0	1.0	0.9	1.0	0.9	0.8	0.9	0.7	(1.0)	1.0	0.9
Federal Military	1.2	1.2	1.2	1.3	1.2	1.1	1.2	1.0	0.4	0.0	0.0
State And Local Government	8.9	9.4	7.9	8.6	8.3	7.3	8.5	6.7	(1.2)	2.7	0.6
TOTAL	93.9	100.0 %	91.8	100.0 %	112.8	100.0 %	127.0	100.0 %	(0.2) %	10.9 %	2.4 %
MSA	93.9	—	91.8	—	112.8	—	127.0	—	(0.2) %	10.9 %	2.4 %
U.S.	172,901.7	—	190,776.8	—	207,048.4	—	223,733.2	—	1.0	4.2	1.6

Source: Woods & Poole Economics, Inc.

The preceding data illustrate the long-term employment trends in this market, including the recent impact of the pandemic and the subsequent recovery. Forecasts developed by Woods & Poole Economics, Inc. anticipate that total employment in the county will change by 1.6% on average annually through 2027. The trend is on par with the forecast rate of change for the United States as a whole during the same period.

Unemployment Statistics

The following table presents historical unemployment rates for Maui County, the state of Hawaii, and the nation.

FIGURE 2-4 UNEMPLOYMENT STATISTICS

Year	County	State	U.S.
2014	4.5 %	4.4 %	6.2 %
2015	3.6	3.6	5.3
2016	3.0	3.0	4.9
2017	2.6	2.4	4.4
2018	2.4	2.5	3.9
2019	2.6	2.7	3.7
2020	17.7	11.7	8.1
2021	7.6	6.0	5.4
2022	3.3	3.3	3.6
2023	4.3	2.9	3.6
Month of October			
2023	5.3 %	2.7 %	3.7 %
2024	3.4	2.8	4.1

Source: U.S. Bureau of Labor Statistics

Prior to the pandemic, U.S. unemployment levels were firmly below the 4.6% level recorded in 2006 and 2007, the peak years of the economic cycle prior to the Great Recession. The national unemployment rate for February 2020 was 3.5%. The unemployment rate had remained in the 3.5% to 3.7% range since April 2019, reflecting a trend of stability and strength. However, in April 2020, after the onset of the pandemic, unemployment rose to 14.7%, while employment dropped by 20.7 million. Steady gains in employment have been registered since that time; most recently, the national unemployment rate was 4.1% in December 2024. Rises in employment of 43,000, 212,000, and 256,000 people were registered in October, November, and December, respectively. In November, the most significant gains were reported in the health care, government, and social assistance sectors.

Locally, the unemployment rate was 4.4% in 2023; for this same area in 2024, the most recent month's unemployment rate was registered at 3.6%, versus 7.6% for the same month in 2023. Unemployment levels declined in 2015, and this positive trend continued through 2018, with unemployment remaining relatively stable in 2019; reportedly, local employment was strong in the tourism and construction industries. Furthermore, we note that the region's unemployment rates have historically been well below the national unemployment rates. However, unemployment data from 2020 illustrate a sharp increase given the effects of the COVID-19 pandemic and related global economic crisis, which included massive furloughs/layoffs. Unemployment declined in 2021 and 2022 as tourism and the economy began to rebound. In 2023, unemployment increased related to the impact of the August 2023 wildfires. The most recent comparative period shows improvement as tourism levels have begun to recover.

Major Business and Industry

Providing additional context for understanding the nature of the regional economy, the following table presents a list of the major employers in the local market.

FIGURE 2-5 MAJOR EMPLOYERS

Rank	Firm	Number of Employees
1	State of Hawaii	5,300
2	County of Maui	2,499
3	Grand Wailea, a Waldorf Astoria Resort	1,400
4	Ritz-Carlton Kapalua	1,000
5	U.S. Federal Government	900
6	Maui Memorial Medical Center	800
7	Four Seasons Resort Maui at Wailea	800
8	Fairmont Kea Lani	700
9	Four Seasons Resort Lana'i at Manele Bay	700
10	Westin Maui Resort & Spa Ka'anapali	700

Source: Maui County, CAFR 2023/24

Tourism is the heart of Hawaii's economy; the state is unique among American tourism destinations because of its physical separation from the U.S. mainland and its relative proximity to Asia. Traditionally, the largest sources of visitation to Hawaii have been the U.S. mainland and Asian countries; nearly 85.0% of visitors come from U.S. feeder markets, while international travelers represent the remaining 15.0%. In 2019, Maui accommodated roughly 3 million visitors with a total visitor expenditure of nearly $5.13 billion. While visitation levels surpassed 2.9 million in 2022, visitor arrivals declined to under 2.5 million in 2023, primarily

attributed to the impact of the August 2023 wildfires. According to the University of Hawai'i Economic Research Organization's ("UHERO") Q3 2024 forecast, Maui's economy remains in the midst of a slow and gradual recovery from its post-wildfire downturn. While reconstruction efforts on Maui are anticipated to take many years, construction activity should spur some economic growth in the near-term. Major projects completed over the last several years include a $340-million car-rental facility at the Kahului Airport, as well as renovations at the Westin, Ritz-Carlton, Fairmont, and Grand Wailea. Development of a 136-room Hampton by Hilton in Kahului is expected to finish in Q1 2025.

Tourism Overview – State of Hawaii

The tourism industry is highly important within this region. The location of Hawaii fosters its status as a truly international resort destination. To monitor the tourism industry, the Hawaii State Department of Business, Economic Development & Tourism ("DBEDT") assumed responsibility in 1999 for collecting and publishing official state tourism-related statistics. The Hawaii Tourism Authority ("HTA") provides comprehensive management of tourism for the state of Hawaii, and is the official source for information on tourism market research, partnership opportunities, industry news and timely updates during emergency situations. Since the vast majority of tourists arrive by way of air travel, visitation data are relatively easy to obtain, as passengers are asked to fill out a questionnaire during their flight. In order to evaluate Hawaii's status as an international tourist destination, we have analyzed historical visitation statistics, as compiled by the DBEDT and HTA.

The following tables show visitation statistics for the state of Hawaii from 2007 through 2024.

FIGURE 2-6 HISTORICAL VISITATION TRENDS FOR THE STATE OF HAWAII (VISITORS BY AIR)

Year	Total Visitors by Air	Percent Change	Domestic Visitors	Percent Change	Domestic % of Total	International Visitors	Percent Change	International % of Total
2007	7,496,820	—	5,582,530	—	74.5 %	1,914,290	—	25.5 %
2008	6,713,436	(10.4) %	4,901,893	(12.2) %	73.0	1,811,543	(5.4) %	27.0
2009	6,420,448	(4.4)	4,672,001	(4.7)	72.8	1,748,447	(3.5)	27.2
2010	6,916,893	7.7	4,957,351	6.1	71.7	1,959,542	12.1	28.3
2011	7,174,397	3.7	5,127,291	3.4	71.5	2,047,106	4.5	28.5
2012	7,867,143	9.7	5,403,025	5.4	68.7	2,464,118	20.4	31.3
2013	8,003,474	1.7	5,405,300	0.0	67.5	2,598,174	5.4	32.5
2014	8,196,342	2.4	5,486,059	1.5	66.9	2,710,283	4.3	33.1
2015	8,563,018	4.5	5,782,140	5.4	67.5	2,780,878	2.6	32.5
2016	8,821,802	3.0	5,968,779	3.2	67.7	2,853,023	2.6	32.3
2017	9,277,613	5.2	6,239,748	4.5	67.3	3,037,865	6.5	32.7
2018	9,761,448	5.2	6,736,736	8.0	69.0	3,024,712	(0.4)	31.0
2019	10,243,165	4.9	7,253,806	7.7	70.8	2,989,359	(1.2)	29.2
2020	2,678,073	(73.9)	2,065,689	(71.5)	77.1	612,384	(79.5)	22.9
2021	6,777,760	153.1	6,656,779	222.3	98.2	120,981	(80.2)	1.8
2022	9,138,674	34.8	8,233,186	23.7	90.1	905,488	648.5	9.9
2023	9,499,995	4.0	7,942,159	(3.5)	83.6	1,557,836	72.0	16.4
2024	9,521,078	0.2	7,856,559	(1.1)	82.5	1,664,519	6.8	17.5

Source: Hawaii Tourism Authority

Based on historical tourism statistics, domestic travel to Hawaii fluctuated with economic trends but generally represented between 65.0% to 75.0% of total visitors by air prior to the onset of the pandemic; since 2012, the split between domestic and international visitors has been roughly two-thirds domestic and one-third international.

As mentioned previously, the largest sources of visitation to Hawaii have historically been from the U.S. mainland and Asia, in particular Japan. Major international feeder markets include Japan, Canada, Oceania, and Korea. Over 1.5 million visitors, or nearly 15.0% of total visitors, were from Japan in 2019.

Hawaii was particularly impacted by the COVID-19 pandemic. The state enacted a mandatory quarantine for all travelers arriving to the Hawaiian Islands in March 2020; this quarantine not only applied to out-of-state visitors, but also for local interisland travel. Travel restrictions were eased in October 2020, and visitor arrivals have continued to improve since. A surge in "revenge travel", those making up for time lost during the pandemic, contributed to a strong recovery in domestic travel in 2022, particularly for the outer islands of Maui, Hawai'i, and Kaua'i. Given various travel restrictions and a strong U.S. Dollar, international visitation has remained well-below pre-pandemic levels. The Japanese market, which produced

roughly 300,000 visitor arrivals in 2022, has been slow to return to Hawaii, attributed to a weak Japanese Yen and the country's slow easing of travel restrictions within Japan. As of year-end 2023, international visitation to the islands has begun to recover, but still remains at roughly 50.0% of pre-pandemic levels. Meanwhile, domestic tourism has begun to soften given the relaxation of travel restrictions, the greater availability of international destination, and the strength of the U.S Dollar. The ongoing recovery of tourism and hotel demand will be explored further in-depth in the Supply and Demand Chapter of this report.

Visitors by air historically indicated that "pleasure" was their primary purpose of travel, representing approximately 80.0% of total 2019 visitation. Post-pandemic data indicate that "pleasure" still represents the primary purpose of visitation to the state. With respect to accommodations, hotels are the preferred lodging option by a large margin; historically over half of all visitors to Hawaii planned to stay at a hotel.

FIGURE 2-7 HAWAII VISITOR CHARACTERISTICS (PURPOSE OF TRIP FOR VISITORS BY AIR)

	2019 Total	% Total	% Change	2020 Total	% Total	% Change	2021 Total	% Total	% Change	2022 Total	% Total	% Change	2023 Total	% Total	% Change
Purpose of Visit (Arrival by Air)															
Pleasure/Vacation	8,694,605	79.5 %	5.7 %	2,120,465	74.1 %	(75.6) %	5,831,791	81.6 %	175.0 %	7,748,223	79.8 %	32.9 %	7,867,458	77.7 %	1.5 %
Meeting/Convention/Incentives	467,231	4.3	(0.9)	132,442	4.6	(71.7)	97,243	1.4	(26.6)	316,247	3.3	225.2	399,582	3.9	26.4
Other Business	273,503	2.5	6.0	99,514	3.5	(63.6)	145,090	2.0	45.8	222,295	2.3	53.2	251,309	2.5	13.1
Visit Friends/Relatives	847,046	7.7	6.7	340,936	11.9	(59.8)	837,314	11.7	145.6	945,207	9.7	12.9	1,002,617	9.9	6.1
Government/Military	109,170	1.0	4.7	36,938	1.3	(66.2)	59,611	0.8	61.4	100,606	1.0	68.8	132,275	1.3	31.5
Education	25,779	0.2	(0.2)	8,755	0.3	(66.0)	15,720	0.2	79.6	20,882	0.2	32.8	20,635	0.2	(1.2)
Sport Events	98,266	0.9	6.9	16,921	0.6	(82.8)	18,861	0.3	11.5	75,508	0.8	300.3	92,901	0.9	23.0
Other	418,081	3.8	(4.8)	105,305	3.7	(74.8)	139,416	2.0	32.4	283,829	2.9	103.6	356,557	3.5	25.6
Total	**10,933,681**	**100.0 %**	**5.0 %**	**2,861,276**	**100.0 %**	**(73.8) %**	**7,145,046**	**100.0 %**	**149.7 %**	**9,712,797**	**100.0 %**	**35.9 %**	**10,123,334**	**100.0 %**	**4.2 %**
Accommodations															
Hotel	6,126,674	53.5 %	4.5 %	1,414,380	48.3 %	(76.9) %	3,518,677	48.0 %	148.8 %	5,059,338	50.0 %	43.8 %	5,450,427	52.0 %	7.7 %
Condominium	1,702,919	14.9	1.9	476,483	16.3	(72.0)	1,317,768	18.0	176.6	1,593,857	15.7	21.0	1,457,883	13.9	(8.5)
Timeshare	850,653	7.4	1.0	170,693	5.8	(79.9)	563,945	7.7	230.4	813,284	8.0	44.2	808,411	7.7	(0.6)
Cruise Ship	143,771	1.3	6.7	24,638	0.8	(82.9)	1,830	0.0	(92.6)	61,800	0.6	3277.0	137,287	1.3	122.1
Friends/Relatives	948,533	8.3	8.1	374,371	12.8	(60.5)	814,744	11.1	117.6	998,733	9.9	22.6	1,067,442	10.2	6.9
Bed & Breakfast	120,496	1.1	2.8	33,588	1.1	(72.1)	67,635	0.9	101.4	97,127	1.0	43.6	92,916	0.9	(4.3)
Rental House	1,039,453	9.1	9.1	289,342	9.9	(72.2)	805,724	11.0	178.5	1,067,979	10.5	32.5	1,015,924	9.7	(4.9)
Hostel	89,536	0.8	9.9	20,398	0.7	(77.2)	33,816	0.5	65.8	68,003	0.7	101.1	71,512	0.7	5.2
Camp Site/Beach	65,049	0.6	10.7	20,052	0.7	(69.2)	33,380	0.5	66.5	64,789	0.6	94.1	61,025	0.6	(5.8)
Room/Space in Private Home*	213,385	1.9	6.8	54,531	1.9	(74.4)	78,937	1.1	44.8	131,670	1.3	66.8	138,929	1.3	5.5
Other	157,002	1.4	15.6	52,384	1.8	(66.6)	97,224	1.3	85.6	168,707	1.7	73.5	180,723	1.7	7.1
Total	**11,457,471**	**100.0 %**	**4.8 %**	**2,930,860**	**100.0 %**	**(74.4) %**	**7,333,680**	**100.0 %**	**150.2 %**	**10,125,287**	**100.0 %**	**38.1 %**	**10,482,480**	**100.0 %**	**3.5 %**

**Sample size for "Room/Space in Private Home" is limited*

Over the past decade, the vacation rental sector in Hawaii largely operated without valid permits, and there were historically few mechanisms for tax collection, although in recent years hotel owners and operators have sought legislation to level the playing field, such as requiring websites including Airbnb and VRBO.com to collect and pay taxes on behalf of short-term rental hosts. The transient occupancy and general excise taxes the short-term rental operators must pay are levied by the state. The necessary permits for short-term rentals are issued by counties, which have varying regulations that were typically poorly enforced.

In recent years, Hawaii's four main counties have made significant progress in crafting laws and rules to better regulate vacation rentals. In April 2019, both the House and Senate of the Hawaii State Legislature approved separate bills addressing the issue. On the island of Oʻahu, Mayor Kirk Caldwell signed a bill establishing a real property tax classification for bed & breakfast properties in December 2019; the law also limits the total number of registered and permitted short-term vacation rentals on Oʻahu starting October 2020. In November 2020, a memoranda of understanding with Airbnb and Expedia Group, parent company of VRBO, was signed with the City & County of Honolulu. Under terms of the agreement, both platforms agree to cooperate with the City in terms of education, information, sharing, and listing; the agreement is expected to help regulate illegal vacation rentals. According to Aloha Hospitality Consulting, vacation rental supply on the island of Oʻahu declined by nearly 50% in 2020, attributed to lack of demand due to the COVID-19 pandemic.

While a similar bill for Kauaʻi County failed to pass in January 2020, the county signed agreements with Expedia and Airbnb in June 2020 to better track and regulate vacation rentals. The agreement requires hosts to submit their tax map key (TMK) numbers to the rental platforms, which is then shared with the county for verification. Violations of the law can incur steep fines of up to $10,000 per day.

On the island of Maui, a new law went into effect on December 22, 2019, significantly increasing the fine for illegal short-term vacation rentals. The fine for a first-time offense is $20,000, followed by fines of $10,000 per day thereafter. In July 2021, the Maui Planning Commission approved a bill reducing the number of short-term rental home permits allowed on Maui from 349 to 178. In November 2022, Maui County Council passed a bill to establish caps on short-term rental uses and creating regulation prohibiting camper-van vacation rentals on public property.

Over the long-term, these new laws and ordinances are expected to help curb the spread of illegal vacation rentals, increase the supply of housing for local residents, and improve hotel occupancies.

The following table illustrates visitation levels by island.

FIGURE 2-8 VISITATION BY ISLAND AND ANNUAL GROWTH %

Calendar Year	2016		2017		2018		2019		2020		2021		2022		2023		2024	
Domestic Visitors by Island		% Chg		% Chg		% Chg		% Chg		% Chg		% Chg		% Chg		% Chg		% Chg
O'ahu	2,913,562	1.6 %	3,009,467	3.3 %	3,217,740	6.9 %	3,513,070	9.2 %	995,915	(71.7) %	3,250,596	226.4 %	4,142,306	27.4 %	4,277,855	3.3 %	4,316,802	0.9 %
Maui	2,171,914	4.2	2,269,119	4.5	2,432,854	7.2	2,650,787	9.0	705,718	(73.4)	2,262,137	220.5	2,672,710	18.1	2,129,969	(20.3)	2,223,473	4.4
Hawai'i	1,187,740	2.9	1,292,724	8.8	1,291,109	(0.1)	1,361,151	5.4	402,317	(70.4)	1,172,729	191.5	1,556,623	32.7	1,590,304	2.2	1,537,257	(3.3)
Kaua'i	1,050,577	2.2	1,125,560	7.1	1,209,338	7.4	1,211,260	0.2	295,850	(75.6)	807,658	173.0	1,285,230	59.1	1,291,918	0.5	1,333,743	3.2
Moloka'i	44,203	(11.3)	41,560	(6.0)	42,441	2.1	44,304	4.4	12,976	(70.7)	25,508	96.6	38,818	52.2	24,082	(38.0)	24,878	3.3
Lana'i	49,299	11.2	48,021	(2.6)	54,310	13.1	58,799	8.3	15,478	(73.7)	47,291	205.5	60,374	27.7	38,412	(36.4)	40,958	6.6
International Visitors by Island		% Chg		% Chg		% Chg		% Chg		% Chg		% Chg		% Chg		% Chg		% Chg
O'ahu	2,533,667	2.5 %	2,681,286	5.8 %	2,644,617	(1.4) %	2,641,178	(0.1) %	519,098	(80.3) %	76,026	(85.4) %	715,864	841.6 %	1,335,553	86.6 %	1,497,374	12.1 %
Maui	462,323	1.4	475,875	2.9	482,058	1.3	460,345	(4.5)	100,647	(78.1)	41,805	(58.5)	248,449	494.3	271,565	9.3	215,318	(20.7)
Hawai'i	362,203	0.4	468,765	29.4	415,108	(11.4)	402,753	(3.0)	90,008	(77.7)	10,729	(88.1)	111,010	934.7	188,759	70.0	191,770	1.6
Kaua'i	136,691	(6.0)	154,408	13.0	179,962	16.5	158,769	(11.8)	35,104	(77.9)	5,990	(82.9)	60,333	907.2	84,945	40.8	77,094	(9.2)
Moloka'i	14,728	(1.3)	16,890	14.7	16,445	(2.6)	18,730	13.9	3,988	(78.7)	251	(93.7)	4,498	1,692.0	8,346	85.5	5,762	(31.0)
Lana'i	13,725	(2.4)	16,337	19.0	20,700	26.7	25,304	22.2	2,491	(90.2)	539	(78.4)	7,643	1,318.0	12,912	68.9	7,462	(42.2)
Total Visitors by Island		% Chg		% Chg		% Chg		% Chg		% Chg		% Chg		% Chg		% Chg		% Chg
O'ahu	5,447,229	2.0 %	5,690,753	4.5 %	5,862,357	3.0 %	6,154,248	5.0 %	1,515,013	(75.4) %	3,326,622	119.6 %	4,858,170	46.0 %	5,613,408	15.5 %	5,814,176	3.6 %
Maui	2,634,237	3.7	2,744,994	4.2	2,914,912	6.2	3,111,132	6.7	806,365	(74.1)	2,303,942	185.7	2,921,159	26.8	2,401,534	(17.8)	2,438,791	1.6
Hawai'i	1,549,943	2.3	1,761,489	13.6	1,706,217	(3.1)	1,763,904	3.4	492,325	(72.1)	1,183,458	140.4	1,667,633	40.9	1,779,063	6.7	1,729,027	(2.8)
Kaua'i	1,187,268	1.2	1,279,968	7.8	1,389,300	8.5	1,370,029	(1.4)	330,954	(75.8)	813,648	145.8	1,345,563	65.4	1,376,863	2.3	1,410,837	2.5
Moloka'i	58,931	(9.0)	58,450	(0.8)	58,886	0.7	63,034	7.0	16,964	(73.1)	25,759	51.8	43,316	68.2	32,428	(25.1)	30,640	(5.5)
Lana'i	63,024	7.9	64,358	2.1	75,010	16.6	84,103	12.1	17,969	(78.6)	47,830	166.2	68,017	42.2	51,324	(24.5)	48,420	(5.7)

Source: State of Hawaii Department of Business, Economic Development & Tourism

As shown in the preceding table, Oʻahu is the most visited island. International visitors [illegible] schedule day trips to visit the outer islands. This trend is due to the travel habits of international visitors, who tend to travel in large groups, use buses as their main form of transportation, and stay in larger full-service hotels. Moreover, the well-developed infrastructure of Oʻahu was planned to handle the needs of these international travelers. In addition, Waikiki as a destination is the most popular among first-time and international visitors.

Maui is the second most visited island after Oʻahu. While Oʻahu and Waikiki offer an experience of Hawaii in a more urban setting, the island of Maui features lush rainforests, pristine white sand beaches, and luxury resort developments. Maui tends to draw both first- and second-time visitors to the Hawaiian Islands, with primary feeder markets stemming from the West Coast of the United States.

Hawaiʻi, also known as the Big Island, is the largest island by land mass. The island also features a number of upscale resort developments on its sunny west side; however, the main draw of Hawaiʻi is the Volcanoes National Park on the east side. Given its sheer size, the Big Islands tends to be frequented by those on their second or third visit to the Hawaiian Islands.

Kauaʻi is the smallest and least populated of the four main Hawaiian Islands. As this particular island remains relatively underdeveloped, Kauaʻi tends to attract a younger, more active demographic that prefers outdoor adventures such as hiking, kayaking, paddleboarding, snorkeling, and helicopter tours. The island has gained significant popularity in recent years, achieving a 6.3% CAGR in visitation levels between 2012 and 2019. Primary feeder markets for Kauaʻi include California, Oregon, Washington, and Arizona.

Visitation Forecast

In 2019, the State of Hawaii achieved a historical peak of over 10.3 million visitors by air. The entrance of Southwest Airlines into the transpacific and interisland market significantly boosted domestic visitation. Prior to the ongoing COVID-19 pandemic, visitation was projected to continue to grow over the next four years, with the largest absolute growth previously expected to stem from the Western United States. In the latest Hawaii DBEDT Quarterly Tourism Forecast, overall visitation is not expected to recover to near peak 2019 levels until 2026/27. The Hawaii DBEDT's most recent four-year visitation forecast, along with historical statistics for 2000 through 2023, are presented in the following table.

FIGURE 2-9 HAWAII DBEDT QUARTERLY TOURISM FORECAST

	Year	Total Visitor Arrivals	Percent Change	
Historical	2000	6,989,293	—	
	2001	6,350,361	(9.1) %	
	2002	6,452,835	1.6	
	2003	6,442,021	(0.2)	
	2004	6,991,926	8.5	
	2005	7,494,234	7.2	
	2006	7,628,117	1.8	
	2007	7,600,819	(0.4)	
	2008	6,822,912	(10.2)	
	2009	6,517,054	(4.5)	
	2010	7,018,134	7.7	
	2011	7,299,047	4.0	
	2012	8,028,745	10.0	
	2013	8,174,461	1.8	
	2014	8,320,785	1.8	
	2015	8,679,564	4.3	
	2016	8,934,279	2.9	
	2017	9,404,346	5.3	**Percentage of 2019 Levels**
	2018	9,888,845	5.2	
	2019	10,424,996	5.4	—
	2020	2,708,000	(74.0)	26.0 %
	2021	6,778,000	150.3	65.0
	2022	9,233,983	36.2	88.6
	2023	9,657,607	4.6	92.6
Forecast	2024	9,564,557	(1.0) %	91.7 %
	2025	9,840,689	2.9	94.4
	2026	10,091,599	5.5	96.8
	2027	10,322,744	4.9	99.0

Source: Hawaii DBEDT Tourism Forecast Q3 2024

We note that growth in tourism is expected to slow in 2024 as domestic visitation softens, coupled with the slower-than-anticipated recovery of demand from international sources. Thereafter, stronger growth is expected between 2025 and 2027, concurrent with stronger forecast levels of international visitation.

Airport Traffic

Airport passenger counts are important economic indicators. Trends showing changes in passenger counts also reflect local business activity and the overall economic health of the area.

Kahului Airport (OGG)

Kahului Airport (OGG) is located on the northern edge of the land bridge between Haleakala and the West Maui Mountain Range on the island of Maui. Many commercial carriers provide service, including Alaska Airlines, American Airlines, Hawaiian Airlines, and United Airlines, among others. The airport is undergoing several phases of expansion, authorized by the Hawaii State Legislature. A long-term goal has been set to prepare Kahului Airport for eventual elevation to permanent international airport status with potential regular service routes from Canada and Asian countries. In May 2019, a new car-rental facility opened at the Kahului Airport. The $340-million, four-story facility houses more than a dozen rental-car companies, including offices, customer-service counters, "ready and return" rental-car spaces, and quick-turn-around areas with fuel and carwash facilities. The rental-car facility also includes approximately 3,800 parking stalls dedicated to the rental-car companies, with an additional 700 stalls for Kahului Airport employees; an electric tram provides transportation between the airport terminal and the rental-car counters. A $3-billion master plan for OGG was released seven years ago and includes upgrades and improvements for the airfield and terminal facilities and services. However, the development remains on hold as of 2024.

Kapalua Airport (JHM)

Kapalua Airport is a regional airport located on the northwest side of Maui between Kapalua and Ka'anapali. Most flights to Kapalua Airport originate from commuter airports on neighboring islands by commercial commuter services, unscheduled air taxis, and general aviation. As of year-end 2019, only two commercial carriers provided service: Hawaiian Airlines and Mokulele Airlines. As a former privately-owned airport, any major changes or improvements to Kapalua Airport cannot be made without the consent of the Maui County Council. The airport is limited to a single runway, a couple of terminals, and ancillary support facilities.

Daniel K. Inouye International Airport (HNL)

Located on the island of O'ahu in Honolulu, Daniel K. Inouye International Airport (formerly known as Honolulu International Airport) is the principal aviation gateway to the State of Hawaii. The airport is host to numerous major U.S. and international flagship commercial carriers with direct routes to Australian, American, Asian, and Pacific Rim destinations. It is also the principal hub for Hawaiian Airlines, which offers flights among the various airports of the Hawaiian

Islands and serves the continental U.S. and Asia Pacific regions. The $270-million Mauka Concourse debuted in August 2021; the 230,000-square-foot, two-story facility added eleven narrow-body gates and includes a connecting walkway between Terminal 1 and a new TSA checkpoint. The $377-million Consolidated Rent-A-Car (CONRAC) facility opened in December 2021. The 1.8-million-square-foot five-story structure consolidated all rental car companies serving the airport and includes rental agency areas, office space, car wash equipment, fueling stations, and 2,250 parking stalls. According to the Hawaii Department of Transportation, roughly $1.6 billion has been invested in airport improvements since 2013.

The following table illustrates recent operating statistics for the airport facilities serving the subject property's submarket.

FIGURE 2-10 AIRPORT STATISTICS

	Kahului Airport		Kapalua Airport		Daniel K Inouye International Airport	
Year	Passenger Traffic	Percent Change	Passenger Traffic	Percent Change	Passenger Traffic	Percent Change
2014	6,246,075	—	46,634	—	19,341,893	—
2015	6,678,772	6.9 %	62,228	33.4 %	19,638,982	1.5 %
2016	6,692,710	0.2	75,295	21.0	19,950,125	1.6
2017	6,645,792	(0.7)	81,744	8.6	18,669,243	(6.4)
2018	7,477,166	12.5	100,624	23.1	20,711,557	10.9
2019	7,978,593	6.7	88,560	(12.0)	21,600,425	4.3
2020	2,340,300	(70.7)	17,575	(80.2)	6,533,674	(69.8)
2021	6,050,254	158.5	12,046	(31.5)	12,064,986	84.7
2022	8,470,124	40.0	15,821	31.3	18,345,657	52.1
2023	7,736,001	(8.7)	8,274	(47.7)	21,188,223	15.5
	Year-to-date through Oct.		*Year-to-date through Oct.*		*Year-to-date through Oct.*	
2023	6,621,209	—	7,443	—	17,647,234	—
2024	5,911,164	(10.7) %	3,657	(50.9) %	18,226,692	3.3 %

Sources: Respective Airport Authorities

Following year-over-year improvement in passenger traffic counts, data from 2020 illustrate a substantial decline given the impact of the COVID-19 pandemic and the travel restrictions that were implemented. The number of passengers traveling through all Hawaiian airports declined significantly in March 2020 as a two-week mandatory quarantine was implemented throughout the state of Hawaii. Passenger numbers slowly started to improve in June 2020 as restrictions were eased for interisland travel, and grew further in October 2020 as the Safe Travels program was introduced.

At the Kahului Airport, passenger traffic rebounded in 2021, and visitation exceeded peak 2019 levels in 2022. However, visitation notably declined in 2023 and in the year-to-date 2024 period related to a pullback in domestic tourism, as well as the significant impact of the Lahaina wildfires in August 2023.

Passenger volume at the Daniel K. Inouye International Airport has generally improved between 2021 and the year-to-date 2024 period, with passenger volume measuring roughly 98.0% of 2019 levels as of year-end 2023. However, given a slowdown in domestic tourism and a prolonged recovery of international visitation levels, estimates from airport and government officials suggest that passenger numbers are not expected to fully recovery to pre-pandemic levels until 2027.

Tourist Attractions

The island of Maui is known for its scenic geography and verdant landscapes. In addition to year-round temperatures in the low-80-degree range, beautiful beaches, and typical warm-weather recreational opportunities, Maui is attractive to vacationers because of its natural beauty and sights. Visiting Hana and Mount Haleakala is especially popular among tourists. Although Maui offers modern infrastructure and many appealing tourist attractions, its natural beauty has been maintained. Outdoor recreational activities include helicopter sightseeing, boat and fishing trips, scuba lessons, snorkeling, and luaus. In addition to beach activities, primary Maui attractions including the following:

- Haleakala National Park contains the approximately 10,023-foot summit of Haleakala (an inactive volcano). The summit's crater is 3,000 feet deep and 21 miles in circumference. The park offers 32 miles of hiking trails and horseback riding tours, as well as beautiful flower farms along the slopes of Haleakala. In February 2017, the National Park Service began to implement a reservations system for guests visiting the summit to prevent overcrowding, limiting sunrise visits from 3 AM to 7 AM to a maximum of 150 vehicle reservations.

- The 'Iao Valley State Park is a lush valley in West Maui, located three miles west of Wailuku. This state park is home to one of Maui's most recognizable landmarks, the 1,200-foot-high stone column named the 'Iao Needle. The

'Iao Needle is set amid a landscape of wild orchids and varieties of local tree ferns and overlooks the 'Iao Stream.

- The Maui Ocean Center houses the largest aquarium in the Western Hemisphere, with amazing exhibits of Hawaiian marine life. It also contains the Whale Discovery Center, featuring life-sized models of humpback whales amid living coral reefs. The Underwater Journey features an acrylic tunnel through a roughly 750,000-gallon saltwater tank filled with 2,000 fish, sharks, and other marine creatures.

- The Maui Tropical Plantation is a 60-acre working plantation that offers visitors a tour through an Agricultural Village, including exhibits on such important crops as sugar, pineapple, macadamia nuts, and coffee. A tram ride is available, which travels through a coconut grove and gardens filled with orchids and other native flowers.

- Molokini is a crescent-shaped, partially submerged volcanic crater located between the islands of Maui and Kaho'olawe within Maui County. The small, uninhabited islet spans 23 acres and is a Hawaii State Seabird Sanctuary. Molokini is a popular tourist destination for both scuba diving and snorkeling, featuring lush coral reefs and many endemic fish. Furthermore, the islet's crescent shape protects divers from waves and the Alalakeiki Channel's strong currents.

- The Bailey House Museum is located in Wailuku and is operated by the Maui Historical Society. The museum was formerly the residence of a 19th-century missionary family. The museum contains 170 years worth of native Hawaiian artifacts, including furnishings dating back to 1850.

- The Alexander & Baldwin Sugar Museum is located in Pu'unene and offers an illuminating overview of Hawaii's sugar plantation days. Displays feature sugar factory machinery and artifacts dating back to 1878.

- In Ka'anapali Resort's Whaler's Village, the Whale Center of the Pacific offers exhibits on the golden age of whaling, including a life-size model of a whaling ship, exhibits of harpoons and other implements, and the skeleton of a 30-foot humpback whale.

- The islands of Lana'i and Moloka'i are located to the west of the island of Maui and offer exclusive beaches, golf courses, and other popular visitor attractions.

HALEAKALA NATIONAL PARK



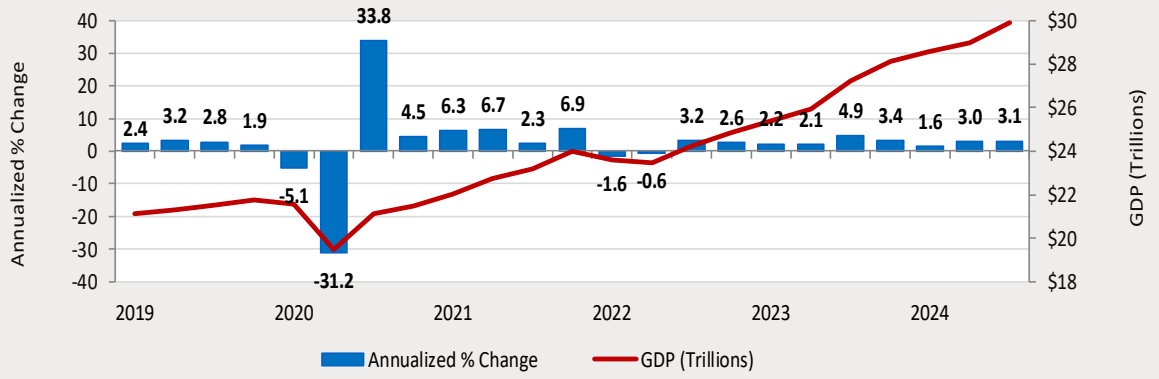
Conclusion

This section discussed a wide variety of economic indicators for the pertinent market area. Given the scenic views and beautiful landscapes, Hawaii's economy is largely dependent upon tourism, which declined significantly in 2020 and early 2021 due to the COVID-19 pandemic. While travel has since rebounded and visitation levels reached record highs on Maui in 2022, the market was again significantly impacted in 2023 by the August wildfires in Lahaina. The impacts of the fire are expected to continue to affect the local economy in the short- to mid-term due to depressed tourism levels and increased unemployment. However, as Maui is expected to remain popular with both domestic and international travelers, and in consideration of future reconstruction efforts in Lahaina, the long-term outlook for the market remains cautiously optimistic.

Our analysis of the outlook for this specific market also considers the broader context of the national economy. Gross domestic product (GDP) is a key measure of a country's economic health and trends. Research has also identified a high degree of correlation between GDP and lodging demand. For the eight quarters leading up to 2020, GDP quarterly growth ranged between 0.9% and 3.8%, reflecting moderate economic expansion. The impact of the pandemic was considerable in 2020. As shutdowns halted major components of the U.S. economy from mid-March through May, GDP contracted by an annualized rate of 31.2% in the second quarter of 2020, the largest such decline in U.S. history. While shocking, this GDP decline was offset by a significant rebound in economic activity in the third quarter of 2020, greatly moderating the overall impact for the year. The U.S. economy grew by 33.8% on an

annualized basis in the third quarter, followed by more modest gains in the five quarters that followed through the end of 2021, with GDP having surpassed the pre-pandemic peak by the first quarter of 2021. A pullback during the first half of 2022 was driven by the trade deficit and decreases in government spending and inventory investment, although the decline was offset by gains during the second half of the year.

FIGURE 2-11 UNITED STATES GDP GROWTH RATE



Sources: tradingeconomics.com, Bureau of Economic Analysis

The positive trend continued through 2023, registering a 2.5% increase for the year, with 1.6%, 3.0%, and 3.1% increases recorded in the first through third quarters of 2024, respectively. According to the October 30, 2024, report from the Bureau of Economic Analysis, "The increase in consumer spending reflected increases in both goods and services. Within goods, the leading contributors were other nondurable goods (led by prescription drugs) and motor vehicles and parts. Within services, the leading contributors were health care (led by outpatient services), as well as food services and accommodations. The increase in exports primarily reflected an increase in goods (led by capital goods, excluding automotive). The increase in federal government spending was led by defense spending. The increase in imports primarily reflected an increase in goods (led by capital goods, excluding automotive)." Despite this favorable economic news, transaction activity has been curtailed by high borrowing costs and stricter lending requirements. While the possibility of the economy slowing in the near term remains a concern, the long-term outlook is optimistic.

3. Market Demand Analysis

Based on our analysis of the subject property, its environs, and proposed development, we have reached the following conclusions regarding the probable market standing and economic impacts of the proposed Mākena Mauka project. While our study's projection period, which serves as a basis for the subject projections, extends over two decades to 2047, it is anticipated that all of the components of the proposed development will be fully absorbed in a shorter period.

Location

As mentioned previously, the subject property is located in the census-designated place (CDP) of Wailea-Mākena, the county of Maui, and the state of Hawaii. Within the greater Maui market, the subject is expected to compete with upscale residential developments in the resort areas of Wailea, Kapalua, and Ka'anapali.

Timeline

As our study and forecast period extends over 20 years, our market-based findings and projections are not considered time-sensitive, and should the project timeline be delayed in the near-term, we would not anticipate major changes to our conclusions.

Affordable Housing

Regardless of the point in the economic cycle, there remains a chronic unmet demand for additional affordably-priced housing on Maui. While numerous directed projects have been proposed, along with other mixed-use developments with a workforce housing component, they have been slow to reach fruition; and, those in-development are failing to meet all demand segments in the upwardly-moving market.

Pricing for the subject inventory will comply with the County of Maui "Residential Workforce Housing Policies".

Real Estate Introduction

While the state of Hawaii was significantly impacted by the COVID-19 pandemic and associated economic downturn, the real estate market quickly rebounded as the state's perceived safety associated with a mandatory quarantine drove a market frenzy and record high pricing. Luxury homes throughout the Hawaiian Islands, particularly on Maui, enjoyed the strongest demand. While the frenzied buying patterns appear to have died down and sales have slowed, the median price on Maui continues to increase and remains at or near peak levels.

2023 Wildfires

The recent August 2023 wildfires have also had major impact on real estate in Maui; more than 2,200 structures were destroyed (roughly 85.0% residential), and over 12,000 residents were displaced. In the aftermath, FEMA provided rentals for

survivors who did not have insurance coverage for fire losses, directly leasing homes for more than 1,200 households and providing subsides to 500 others. In October 2024, FEMA raised its rates by 75.0% to entice landlords to rent to locals instead of short-term rentals. With this change in policy, the agency is reportedly paying roughly $3,000 per month for a one-bedroom unit, and more than $5,100 for a three-bedroom, which has further exacerbated the rental market. A report from the University of Hawaii Economic Research Organization ("UHERO"), which conducted surveys in August 2024 found that households who lived, worked, or owned businesses in West Maui and Kula at the time of the 2023 wildfires continue to struggle with housing costs and stability, economic recovery, and access to resources. On average, affected households are reportedly paying over 40.0% more to rent units with the same, or fewer, bedrooms as their original residences.

In the aftermath of the wildfires, the state and other entities have raced to provide temporary and new permanent housing for those affected by the wildfires. The Council for Native Hawaiian Advancement is building 16 modular units in Lahaina and 50 in Kahului. FEMA also is constructing 169 modular homes next to a similar site being built in Lahaina by the state and the Hawaii Community Foundation. In December 2024, the U.S. Congress voted to allocate $1.6 billion in disaster relief through the U.S. Department of Housing and Urban Development (HUD) to support Maui's efforts to rebuild homes, with another $480 allocated for disaster recovery. However, strict federal guidelines govern how the funds must be used, including requirements for comprehensive financial reporting by the County to the federal government.

As mentioned earlier in this report, the impacts of the fire are expected to continue to affect the local economy in the short- to mid-term, with more significant repercussions on the housing market. In October 2024, Maui County released a draft recovery plan that includes short-term projects of one- to two years, mid-term projects of three to five years, and long-term projects of six or more years. However, a concrete timeline for a reconstruction efforts remains unclear.

Real Estate Overview

The "Kihei-Mākena Study Area" (or "South Maui"), which is actually geographically on the south-west coast of the island, is characterized by sandy beaches, resort hotels, upscale condominiums, world-renowned golf courses, and private residential areas. This area, which encompasses Kihei, Wailea, and Mākena, is one of the main tourist destinations on the island of Maui, and has been a focal point for high-end resort commercial and residential development over the last few decades. The residential units at Mākena Mauka are anticipated to cater to the luxury residential market on Maui. The proposed subject site is favorably located in the high-end resort destination of Wailea-Mākena in South Maui, with panoramic views of the Pacific Ocean, Lanai, Molokini, and Kaho'olawe.

Set forth is an overview of relevant trends in the sale of this type of product, as well as an overview of the magnitude and mechanics of the market. This overview also sets the foundation for our forecast of future absorption of the residential component of Mākena Mauka.

The following are several of the more dominant trends shaping Maui's luxury residential market:

- Prior to the onset of the pandemic, the number of luxury residential sales remained generally stable; however, median sales price generally increased year-over-year following a recovery from the 2008 recession.
- The number of luxury sales (greater than $3 million) has generally trended upward year-over-year since 2013.
- The median sales price within the greater Maui residential market has trended upward year-over-year since the recession.

Because the real estate market on the island of Maui is relatively mature and sophisticated, there are comparable data available to provide an understanding of historical development, prices, and sales. Our focus is to profile the competitive developments relative to Mākena Mauka and to project the subject's absorption based on the analysis of sales and prices of comparable projects.

Residential Market Trends and New Supply

The residential market in Maui is robust given consistent upwards movement in pricing and with limited new supply in the past ten years. Luxury product within this market is primarily concentrated in the resort destination areas of Wailea, Mākena, Kapalua, and Ka'anapali. Low vacancy rates and limited supply suggest there is a significant undersupply of housing.

The following tables reflects residential sales trend for the greater Maui market, as provided by the Realtors Association of Maui.

FIGURE 3-1 MAUI RESIDENTIAL SALES – SUMMARY OF ANNUAL SALES

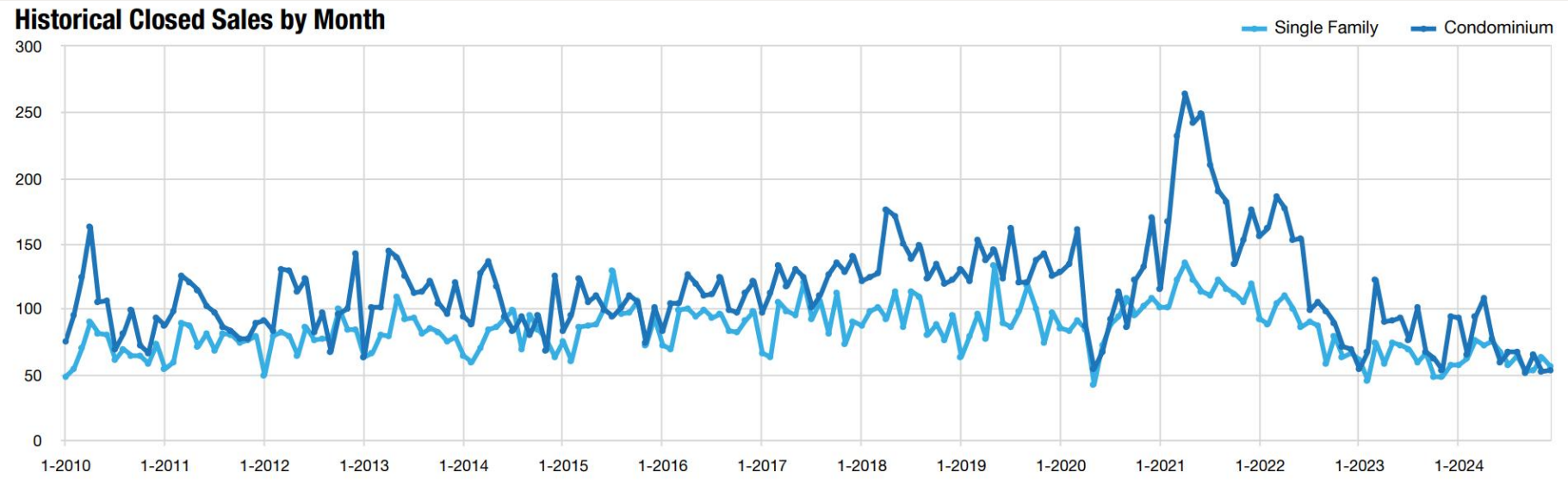


FIGURE 3-2 MAUI RESIDENTIAL SALES – MEDIAN SALES PRICE

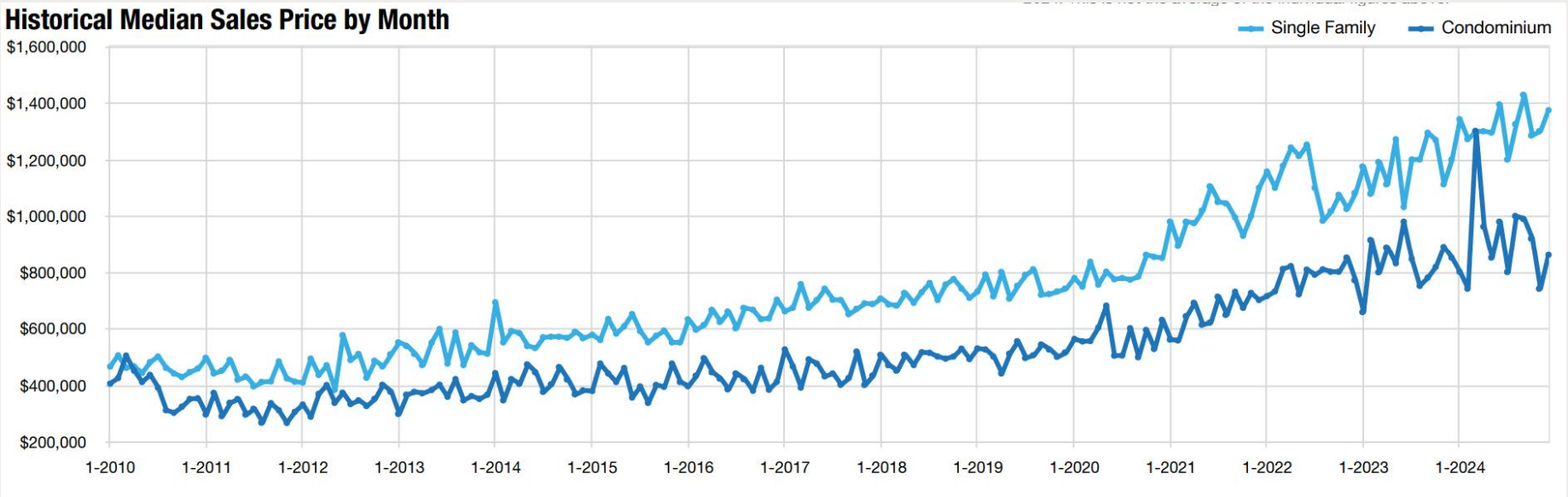


FIGURE 3-3 MAUI RESIDENTIAL SALES – DAYS ON MARKET

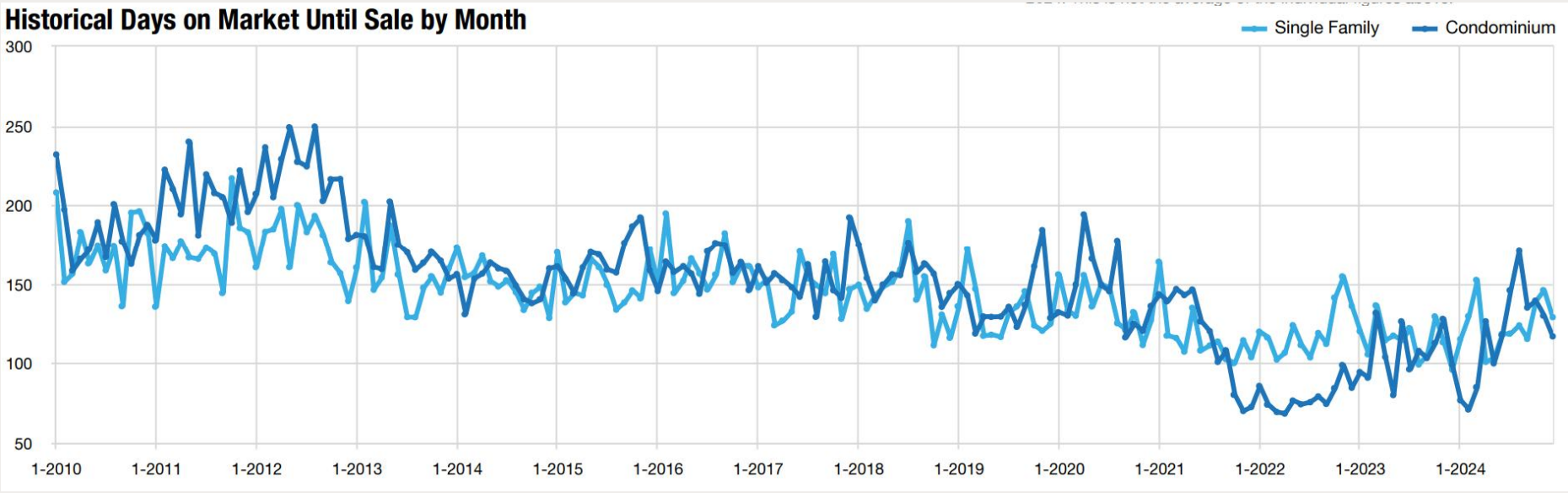
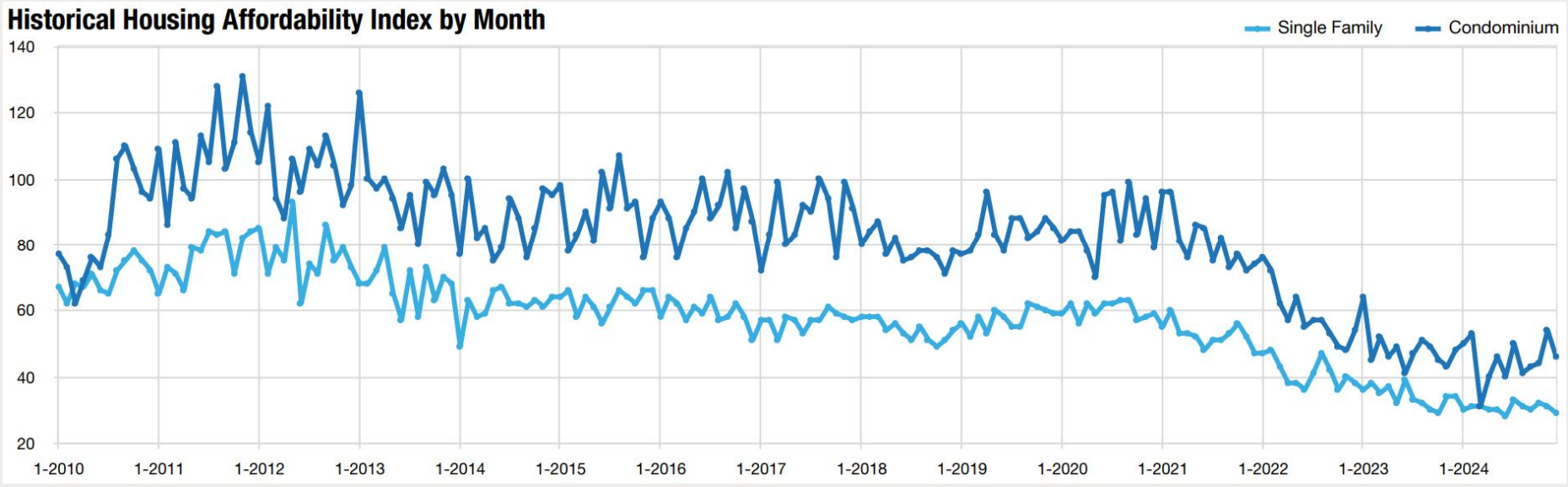


FIGURE 3-4 MAUI RESIDENTIAL SALES – HOUSING AFFORDABILITY INDEX



As illustrated, the number of transactions in the greater Maui market remained relatively stable in the decade prior to the onset of the pandemic. Transaction activity significantly increased in 2021 and early 2022, attributed to an influx of out-of-state buyers in the Maui residential market. In 2023, single-family home transactions were down 28.7% and condominium transactions fell 36.3%. The decline in home transactions is primarily a result of high interest rates, as well as the impact of the August 2023 wildfires. High interest rates lowered the demand for home purchases due to the rising costs of mortgages. It also impacted supply of housing inventory, as current owners with fixed-rate mortgages became reluctant to sell because they would potentially be exposed to much higher interest rates with a new home purchase.

The median sales price has generally trended upward year-over-year since the recession. Improving economic conditions, limited new supply, and high-quality units have contributed to the strong growth in recent years. We note the significant increase in median sales price is attributed to the pandemic.

The average number of days on market (DOM) has generally decreased since its previous high between 2010 and 2012. Limited inventory and increased demand have primarily contributed to this trend. Our conversations with local brokers indicate that the average DOM should remain around two to three months in the near term.

We have narrowed our research to focus primarily on the areas of Kapalua, Ka'anapali, and Wailea-Mākena. These submarkets represent resort destinations that offer a mix of residential inventory types, including improved and vacant single-family lots, as well as multi-family units, similar to the proposed subject property. The following tables reflect annual sales trends for single-family residences and condominiums in the Kapalua, Ka'anapali, and Wailea-Mākena submarkets since 2011.

FIGURE 3-5 KAPALUA, KA‘ANAPALI, WAILEA-MĀKENA – SINGLE FAMILY SALES TRENDS

Single Family Sales - Wailea-Makena, Kapalua, Ka'anapali				
Year	Number of Sales	Average Sales Price	Total Dollar Volume	Market Share (Volume)
2011	76	$3,010,732	$228,815,667	32.3%
2012	56	2,444,079	136,868,397	20.7%
2013	63	2,917,633	183,810,904	24.0%
2014	66	2,593,487	171,170,120	20.7%
2015	59	3,070,212	181,142,499	19.4%
2016	60	2,971,126	178,267,577	17.1%
2017	59	3,259,324	192,300,138	17.1%
2018	78	2,757,199	215,061,502	18.5%
2019	79	3,356,546	265,167,114	21.9%
2020	79	3,658,598	289,029,280	23.3%
2021	148	4,697,398	695,214,883	29.3%
2022	68	5,614,419	381,780,500	21.9%
2023	49	5,713,380	279,955,617	22.0%
2024	52	6,235,400	324,240,811	23.9%
CAGR (2011 - 24)	-2.9%	5.8%	2.7%	
CAGR (2019 - 24)	-8.0%	13.2%	4.1%	

FIGURE 3-6 KAPALUA, KA‘ANAPALI, WAILEA-MĀKENA – CONDOMINIUM SALES TRENDS

Condominium Sales - Wailea-Makena, Kapalua, Ka'anapali				
Year	Number of Sales	Average Sales Price	Total Dollar Volume	Market Share (Volume)
2011	256	$1,146,333	$293,461,200	52.2%
2012	325	864,140	280,845,509	47.7%
2013	319	1,231,484	392,843,303	51.5%
2014	278	1,385,696	385,223,586	51.0%
2015	255	1,497,490	381,859,940	50.0%
2016	257	1,404,114	360,857,293	44.6%
2017	325	1,497,289	486,618,949	49.2%
2018	434	1,417,254	615,088,394	51.3%
2019	362	1,434,317	519,222,717	46.1%
2020	333	1,586,907	528,439,994	48.6%
2021	699	1,856,008	1,297,349,481	56.8%
2022	342	2,208,031	755,146,434	45.7%
2023	206	2,922,459	602,026,528	49.1%
2024	264	2,758,502	728,244,549	60.2%
CAGR (2011 - 24)	0.2%	7.0%	7.2%	
CAGR (2019 - 24)	-6.1%	14.0%	7.0%	

As illustrated, aside from upwards movement in average sales price and total dollar volume, real estate trends for single-family and condominium sales within these submarkets remained relatively stable between 2012 and 2019. However, all metrics notably increased in 2021 following unprecedented demand amid an influx of out-of-state buyers. Average sales price continued to increase in 2022, although total dollar volume began to normalize. Data in 2023 and 2024 illustrate a continuation of this trend, although we note that average sales price of condominiums declined by roughly 5.0% in 2024.

We have also researched historical land sales within these three submarkets. However, given the limited number of sales, it is difficult to extract meaningful trends from the data.

FIGURE 3-7 KAPALUA, KA'ANAPALI, WAILEA-MĀKENA – LAND SALES TRENDS

Land Sales - Wailea-Makena, Kapalua, Ka'anapali

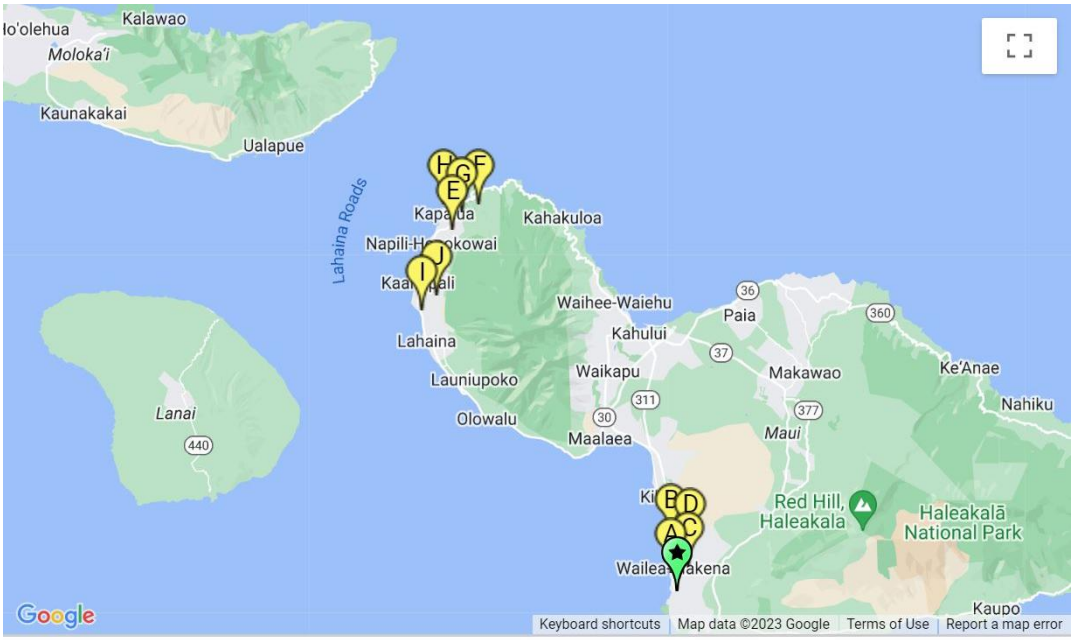
Year	Number of Sales	Average Sales Price	Total Dollar Volume
2011	28	$915,982	$25,647,500
2012	24	871,225	20,909,400
2013	35	1,088,143	38,085,018
2014	37	1,235,877	45,727,451
2015	28	2,663,705	74,583,750
2016	27	793,579	21,426,625
2017	27	748,620	20,212,750
2018	16	2,390,296	38,244,731
2019	30	2,591,467	77,744,000
2020	29	1,320,589	38,297,075
2021	126	1,149,365	144,820,007
2022	47	1,650,324	77,565,250
2023	24	2,644,180	63,460,308
2024	55	4,106,977	225,883,750
CAGR (2011 - 24)	5.3%	12.2%	18.2%
CAGR (2019 - 24)	12.9%	9.6%	23.8%

Comparable Residential Projects

There are several comparable single-family and multi-family residential products in the greater Maui market that we have used to draw conclusions about the prospects for Mākena Mauka. In an effort to gain a better understanding of the proposed subject development's potential from a supply perspective, we have researched these projects.

Primary active single-family competitors in Wailea-Mākena include improved and vacant lots within One Palauea Bay, Wailea Kai, Wailea Golf Vista, and Wailea Highlands. In Kapalua, competitors include Pineapple Hill, Plantation Estates, Mahana Estates, and Kapalua Place, while competitors in Ka‘anapali include Laniheka and The Pinnacle within the Ka‘anapali Golf Estates.

COMPETITION MAP – IMPROVED & VACANT LOTS



Makena Beach and Golf Resort

A One Palauea Bay

B Wailea Kai

C Wailea Golf Vista

D Wailea Highlands

E Pineapple Hill

F Plantation Estates

G Mahana Estates

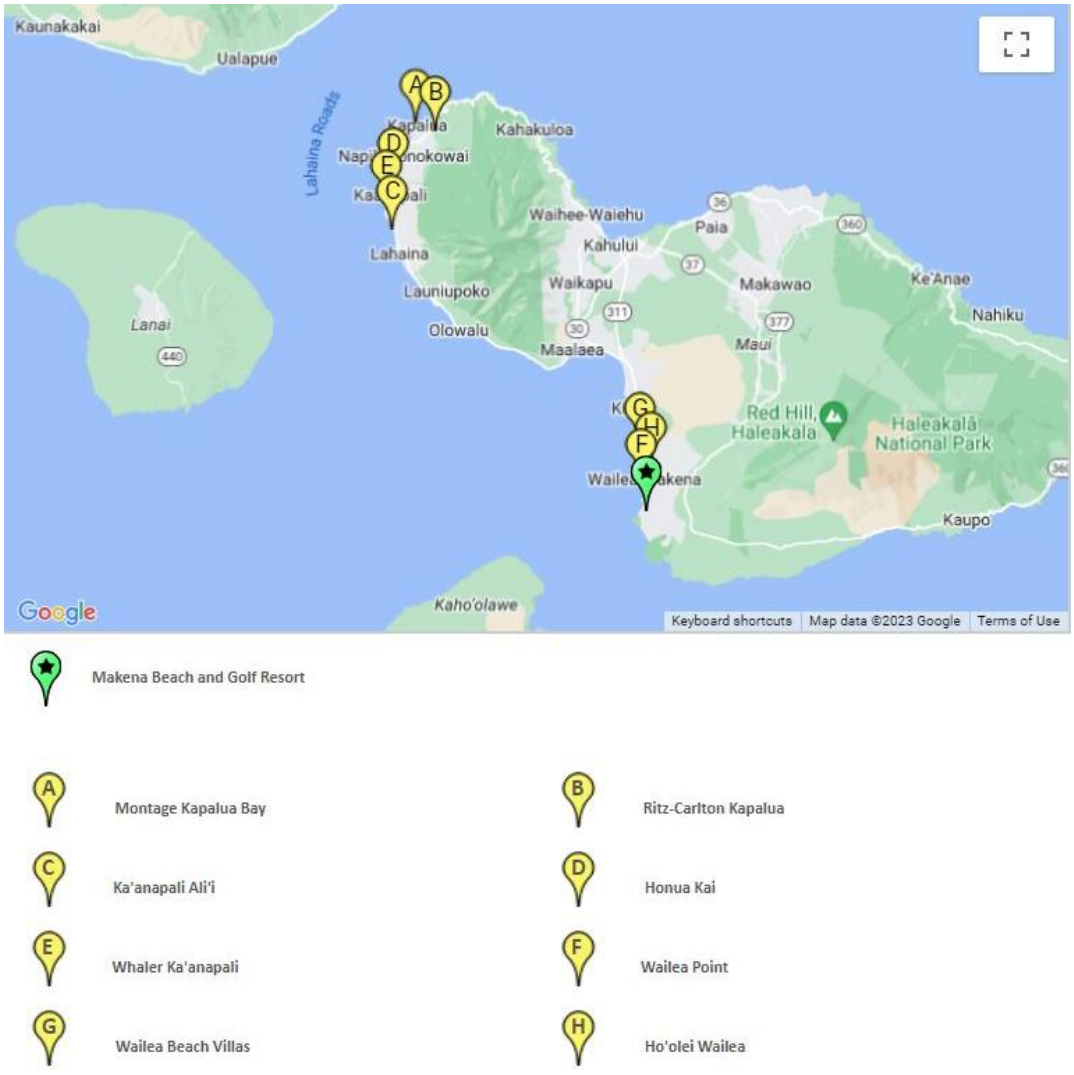
H Kapalua Place

I Laniheka

J The Pinnacle

Primary active condominium competitors include the Montage and Ritz-Carlton in Kapalua, as well as Ka‘anapali Ali‘i, Honua Kai, and Whaler in Ka‘anapali. In the Wailea-Mākena area, competitors include Wailea Point, Wailea Beach Villas, Ho‘olei Wailea, as well as Kula Villas, Beach Cottages, Beach Club Residences, and Molokini Residences within the subject-Mākena Golf & Beach Club.

COMPETITION MAP – CONDOMINIUMS



It is important to note that while some of these developments have active listings, most are reselling privately owned units and are not developer-owned inventory.

Competitive developments that are still in the pipeline include Ka‘eo, a 47.15-acre mixed-use development within the Mākena Golf & Beach Club, which will feature 32 single-family custom lots, 30 multi-family units (including 4 workforce units), 18 single-family cottages, 14 condominiums, and 9 transient vacation rentals. Mākena H-2 Residential, a 28-acre lot located makai of Mākena Alanui, is planned to feature 53 single-family residential lots.

Of these comparable developments, the units at the subject Mākena Golf & Beach Club are anticipated to be the most competitive with the multi-family residences at Mākena Mauka given the similar luxury product, location, views, and amenities. The Montage, Ritz-Carlton, and Wailea Point are also considered competitive given their product offering, high-end finishes, and resort-style amenities. The units at Ka‘anapali Ali‘i, Honua Kai, and Whaler in Ka‘anapali are older and command a lower price per square foot. However, these developments have been considered competitive given their resort locations and large unit sizes.

Subject Property Price Positioning

The success of residential sales, both single-family lots and multi-family units, at Mākena Mauka depends on a number of factors, both internal and external to the project. These factors include location, physical character of the project, the type and quality of the amenities, macroeconomic conditions, and the local residential market conditions.

Based on the subject site’s location in the desirable Wailea-Mākena resort area, with panoramic and unobstructed views, as well as the anticipated high-level quality of product associated with the subject development, the proposed residential component is anticipated to achieve pricing equal to or in excess of those typically achieved in the local market for a similar product or unit type. Furthermore, the unparalleled offering of amenities within Mākena Golf & Beach Club is also expected to support and drive the demand for these residential lots and units.

HVS was provided comprehensive pricing data related to existing residential product, as well as guidance on future anticipated pricing for upcoming product, within Mākena Golf & Beach Club. However, per the client‘s request this data has been kept confidential.

Based upon the analysis of the existing comparables, our understanding of the market, the nature of the subject Mākena Mauka, as well as developer’s initial pricing model, HVS is of the opinion that the proposed residential product will garner some of the highest pricing in Maui on a price-per-square-foot basis. Given the growing appetite for luxury residential product, the offering at Mākena Mauka is expected to attract wealthy, out-of-state homebuyers. Due to the location of the project in a resort community, the expected buyer’s demographic profile includes a few local residents, with the majority of buyers being from off-island.

Absorption

We have estimated the absorption of residential sales at Mākena Mauka using comparable properties, historical sales within the greater Mākena Golf & Beach Club, as well as our discussions with the developer, as a basis for our projections. According to the Realtors Association of Maui, as of December 2024, the greater Maui market had 377 active listings, a 63.2% increase from the same period in 2023. This represents 6.2 months of inventory, a substantial increase over 3.7 months of supply in December 2023. Inventory levels lower than four months indicate tight market conditions, typically associated with upward price movement.

Given the limited available supply, as well as in consideration of Mākena Mauka's favorable location, we have assumed that the maximum number of multi-family residences that could be sold each year would total 30 units. In the first projection year, we have assumed zero units would be sold given construction related to infrastructure and site work, as well as in consideration of the ramp up of marketing efforts. Thereafter, future sales are expected to follow a similar trend to historical sales; as such, residential sales are not expected to initially achieve maximum absorption. Based on our review of historical sales within the greater Mākena Golf & Beach Club development, each development "parcel" with 30 or more units is expected to sellout over a ten-year period. We note that the 94 multi-family workforce housing units have not been included in the forecast; however, these units are expected to be readily absorbed; we have assumed these units would be constructed sometime in the initial five-year period. Our forecasted sales pace of the subject Mākena Mauka's residential condominium units is illustrated in the following table.

FIGURE 3-8 ABSORPTION OF SUBJECT MULTI-FAMILY RESIDENCES

Year		Sales & Absorption Timing	Absorbed Residential Units (Pre-Sold/Reserve)
Calendar	Development		
2028	1	Infrastructure Emplacement Commences	0
2029	2	Infrastructure Completed, Vertical Construction & Pre-Sales Begin	15
2030	3	Construction, Absorption & Sales On-Going	30
2031	4	Construction, Absorption & Sales On-Going	30
2032	5	Construction, Absorption & Sales On-Going	30
2033	6	Construction, Absorption & Sales On-Going	30
2034	7	Construction, Absorption & Sales On-Going	30
2035	8	Construction, Absorption & Sales On-Going	30
2036	9	Construction, Absorption & Sales On-Going	30
2037	10	Construction, Absorption & Sales On-Going	30
2038	11	Construction, Absorption & Sales On-Going	30
2039	12	Construction, Absorption & Sales On-Going	30
2040	13	Construction, Absorption & Sales On-Going	30
2041	14	Construction, Absorption & Sales On-Going	18
Total			**363**

***Does not Include 94 multi-family residential workforce housing units*

We have also developed a forecast of absorption for the subject's rural and residential single-family lots. These single-family lots are expected to average 0.5 to 1.6 acres in size. Based on historical trends, we have assumed that the smaller lots will sell at a quicker pace, although absorption will inevitably depend on pricing. Similar to the multi-family residences, we have assumed that zero lots would be sold in the first projection year given construction related to infrastructure and site work, as well as in consideration of the ramp up of marketing efforts. Thereafter, future sales are expected to follow a similar trend to historical sales. Our forecasted sales pace of the subject Mākena Mauka's rural and single-family residential lots is illustrated in the following table. Note that the 15 single-family workforce housing units have not been included in the forecast; however, these units are expected to be readily absorbed; we have assumed these units would be constructed sometime in the initial five-year period.

FIGURE 3-9 ABSORPTION OF SUBJECT RURAL & SINGLE-FAMILY LOTS

Year			Absorbed
Calendar	Development	Sales & Absorption Timing	Residential Lots
2028	1	Infrastructure Emplacement Commences	0
2029	2	Infrastructure Completed & Pre-Sales Begin	5
2030	3	Absorption & Sales On-Going	10
2031	4	Absorption & Sales On-Going	15
2032	5	Absorption & Sales On-Going	15
2033	6	Absorption & Sales On-Going	15
2034	7	Absorption & Sales On-Going	15
2035	8	Absorption & Sales On-Going	15
2036	9	Absorption & Sales On-Going	15
2037	10	Absorption & Sales On-Going	15
2038	11	Absorption & Sales On-Going	15
2039	12	Absorption & Sales On-Going	15
2040	13	Absorption & Sales On-Going	15
2041	14	Absorption & Sales On-Going	15
Total			**180**

***Does not Include 15 single-family residential workforce housing units*

As illustrated, the proposed Mākena Mauka development is expected to achieve full absorption within approximately fifteen years of initial pre-sales offerings, which are anticipated to commence in 2029. Both the multi-family residences, as well as the rural and single-family lots, are projected to be absorbed in a roughly fifteen-year period. The projected absorption period is in line with historical sales trends at the greater Mākena Golf & Beach Club.

4. Statement of Assumptions and Limiting Conditions

1. This report is set forth as a market study of the subject property; this is not an appraisal report.
2. This report is to be used in whole and not in part.
3. No responsibility is assumed for matters of a legal nature, nor do we render any opinion as to title, which is assumed marketable and free of any deed restrictions and easements. The property is evaluated as though free and clear unless otherwise stated.
4. We assume that there are no hidden or unapparent conditions of the sub-soil or structures, such as underground storage tanks, that would render the property more or less valuable. No responsibility is assumed for these conditions or for any engineering that may be required to discover them.
5. We have not considered the presence of potentially hazardous materials such as asbestos, urea-formaldehyde foam insulation, polychlorinated biphenyls (PCBs), any form of toxic waste, pesticides, mold, or lead-based paints. We are not qualified to detect hazardous substances and urge the client to retain an expert in this field if desired.
6. The Americans with Disabilities Act (ADA) became effective on January 26, 1992. We have conducted no specific compliance survey to determine whether the subject property has been designed in accordance with the various detailed requirements of the ADA. It is possible that the design does not conform to the requirements of the act, and this could have an unfavorable effect on operations. Because we have no direct evidence regarding this issue, our estimates do not consider possible non-compliance with the ADA.
7. We have made no survey of the property, and we assume no responsibility in connection with such matters. Sketches, photographs, maps, and other exhibits are included to assist the reader in visualizing the property. It is assumed that the use of the described real estate is within the boundaries of the property described and that there is no encroachment or trespass unless noted.
8. All information, financial operating statements, estimates, and opinions obtained from parties not employed by TS Worldwide, LLC are assumed true and correct. We can assume no liability resulting from misinformation.

9. Unless noted, we assume that there are no encroachments, zoning violations, or building violations encumbering the subject property.

10. The property is assumed to be in full compliance with all applicable federal, state, local, and private codes, laws, consents, licenses, and regulations (including the appropriate liquor license if applicable), and that all licenses, permits, certificates, franchises, and so forth can be freely renewed or transferred to a purchaser.

11. All mortgages, liens, encumbrances, leases, and servitudes have been disregarded unless specified otherwise.

12. None of this material may be reproduced in any form without our written permission, and the report cannot be disseminated to the public through advertising, public relations, news, sales, or other media.

13. We are not required to give testimony or attendance in court because of this analysis without previous arrangements and shall do so only when our standard per-diem fees and travel costs have been paid prior to the appearance.

14. If the reader is making a fiduciary or individual investment decision and has any questions concerning the material presented in this report, it is recommended that the reader contact us.

15. We take no responsibility for any events or circumstances that take place subsequent to the date of our field inspection.

16. The conclusions presented in this report is based upon assumptions, estimates, and evaluations of the market conditions in the local and national economy, which may be subject to sharp rises and declines.

17. It is agreed that our liability to the client is limited to the amount of the fee paid as liquidated damages. Our responsibility is limited to the client; the use of this report by third parties shall be solely at the risk of the client and/or third parties. The use of this report is also subject to the terms and conditions set forth in our engagement letter with the client.

18. This study was prepared by TS Worldwide, LLC. All opinions, recommendations, and conclusions expressed during the course of this assignment are rendered by the staff of TS Worldwide, LLC as employees, rather than as individuals.

John Berean

EMPLOYMENT

2015 to present	HVS CONSULTING AND VALUATION SERVICES San Francisco, California
2013	QUEEN KAPIOLANI HOTEL Honolulu, Hawaii

EDUCATION AND OTHER TRAINING

MA – HSBC Business School, Peking University

BA – Middlebury College

Other Specialized Training Classes Completed:

Uniform Standards of Professional Appraisal Practice
Basic Appraisal Principles
Basic Appraisal Procedures
Supervisor/Trainee Course for Texas
General Appraiser Income Approach (Parts I and II)
General Appraiser Site Evaluation & Cost Approach
Real Estate Finance, Statistics, and Valuation Modeling
General Appraiser Market Analysis and Highest & Best Use
General Appraiser Sales Comparison Approach
General Appraiser Report Writing and Case Studies
Expert Witness for Commercial Appraisers
Commercial Appraisal Review
Advanced Income Capitalization
Advanced Concepts & Case Studies
Advanced Market Analysis and Highest & Best Use
Quantitative Analysis
Business Practices and Ethics
Capstone
Biennial USPAP Updates

STATE CERTIFICATIONS

California, Hawaii

PUBLISHED ARTICLES

HVS Journal	"An Overview of San Francisco's Prolonged Recovery," co-authored with Jason Lee, August 2024
HVS Journal	"Sacramento Growth Continues," co-authored with Brandon Conner, December 2023
HVS Journal	"Slow but Steady Recovery for the Silicon Valley Lodging Market," co-authored with Jason Lee, August 2023
HVS Journal	"Travel Trends and Supply Changes for the Hawaii Lodging Market," May 2023
HVS Journal	"HVS U.S. Development Cost Survey 2021/22," February 2022
HVS Journal	"COVID-19's Impact on the Silicon Valley Lodging Market," February 2022
HVS Journal	"COVID-19's Impact on the San Francisco Lodging Market," March 2021
HVS Journal	"HVS Market Pulse: State of Hawaii," May 2019
HVS Journal	"HVS Market Pulse: San Francisco," February 2019
HVS Journal	"HVS Market Pulse: Sacramento," October 2018
HVS Journal	"HVS Market Pulse: Silicon Valley," September 2017
HVS Journal	"HVS Market Pulse: Island of Oahu, Hawaii," August 2016

EXAMPLES OF PROPERTIES APPRAISED OR EVALUATED

ALABAMA

Embassy Suites by Hilton Huntsville Hotel & Spa, Huntsville

ARIZONA

Hampton by Hilton Phoenix/Chandler, Chandler
Renaissance Phoenix Glendale Hotel & Spa, Glendale
Proposed Dual-Brand Hotel, Lake Havasu City
Proposed Dual-Branded Fairfield & TownePlace Suites by Marriott, Lake Havasu City
SpringHill Suites by Marriott Phoenix North, Phoenix
The Scottsdale Plaza Resort & Villas, Scottsdale

CALIFORNIA

Coral Reef Inn & Suites, Alameda
Extended Stay America Oakland Alameda Airport, Alameda
Extended Stay America Premier Suites Oakland Alameda, Alameda
Renaissance ClubSport Aliso Viejo Laguna Beach Hotel, Aliso Viejo
Gaia Hotel & Spa, Anderson
Clarion Anaheim Resort, Anaheim
DoubleTree by Hilton Suites Anaheim Resort Convention Center, Anaheim
Holiday Lodge, Antioch
Proposed Home2 Suites by Hilton, Antioch
Best Western Plus Colony Inn (Conversion to Fairfield by Marriott), Atascadero
Foothills Motel, Auburn
Holiday Inn Auburn, Auburn
Holiday Inn Express & Suites Banning, Banning
Extended Stay America Premier Suites San Francisco Belmont, Belmont
Claremont Resort & Spa, a Fairmont Hotel, Berkeley
DoubleTree by Hilton Berkeley Marina, Berkeley
La Quinta Inn by Wyndham Berkeley, Berkeley
Viceroy L'Ermitage Beverly Hills, Beverly Hills
Esalen Institute, Big Sur
Ventana Big Sur, an Alila Resort, Big Sur
Calistoga Inn Restaurant & Brewery, Calistoga
Calistoga Spa Hot Springs, Calistoga
Proposed Hotel, Buena Park
Marriott Los Angeles Burbank Airport, Burbank
Proposed Aloft & Residence Inn by Marriott Burbank Airport, Burbank
Crowne Plaza San Francisco Airport, Burlingame
Vagabond Inn Executive San Francisco Airport, Burlingame
Proposed Fairfield by Marriott, Buttonwillow
Calistoga Inn, Calistoga
Calistoga Spa Hot Springs, Calistoga
UpValley Inn & Hot Springs, Ascend Hotel Collection, Calistoga
Motel 6 Campbell/San Jose, Campbell
TownePlace Suites by Marriott San Jose Campbell, Campbell
Staybridge Suites Cathedral City Golf Resort, Cathedral City
Proposed Hampton Inn & Suites Chico, Chico
Holiday Inn Express & Suites Chowchilla Yosemite Park Area, Chowchilla
Proposed Dual-Brand Hotel, Chula Vista
Proposed Gaylord Pacific Resort & Convention Center, Chula Vista
Proposed Citrus Heights Hotel, Citrus Heights
Proposed Alexander Valley Resort, Cloverdale
Proposed Boutique Hotel, Copperopolis
Best Western Corte Madera Inn, Corte Madera
Proposed Luxury Hotel & Residences South Coast Plaza, Costa Mesa
Proposed Reverb by Hard Rock, Cotati
Aloft Cupertino, Cupertino
Courtyard by Marriott San Jose Cupertino, Cupertino
Residence Inn by Marriott San Jose Cupertino, Cupertino
Hampton by Hilton San Francisco Daly City, Daly City
Ritz-Carlton Laguna Niguel Dana Point, Dana Point
Hyatt House Davis, Davis
Proposed Residence Inn by Marriott Sacramento Davis, Davis
Residence Inn by Marriott Sacramento Davis, Davis
University Park Inn & Suites, Davis
Extended Stay America Dublin Hacienda Drive, Dublin
Two Proposed Hotels, Dublin
Four Seasons Hotel Silicon Valley at East Palo Alto, East Palo Alto
Proposed Select-Service Hotel, East Palo Alto
Hotel Mira Vista, El Cerrito
Holiday Inn El Monte Los Angeles, El Monte
Yosemite Cedar Lodge, El Portal
Yosemite View Lodge, El Portal
Holiday Inn Express Elk Grove Sacramento Area, Elk Grove
Proposed Candlewood Suites, Elk Grove
Proposed Extended-Stay Hotel, Elk Grove
Proposed Hotel, Elk Grove
Proposed Staybridge Suites, Elk Grove
Courtyard by Marriott Fairfield Napa Valley Area, Fairfield
Extended Stay America Fairfield Napa Valley, Fairfield

Fairfield by Marriott Fairfield Napa Valley Area, Fairfield
Motel 6 Fairfield North, Fairfield
Proposed Home2 Suites by Hilton, Fairfield
Proposed Hyatt House, Fairfield
Proposed AC Hotel by Marriott, Folsom
Holiday Inn Express Fort Bragg, Fort Bragg
Proposed Select-Service Hotel, Foster City
Courtyard by Marriott San Mateo Foster City, Foster City
Best Western Plus Garden Court Inn, Fremont
Comfort Inn Silicon Valley East Fremont, Fremont
Extended Stay America Fremont Boulevard South, Fremont
Extended Stay America Fremont Newark, Fremont
Extended Stay America Fremont Warm Springs, Fremont
Fremont Marriott Silicon Valley, Fremont
Hilton Garden Inn Fremont Milpitas, Fremont
La Quinta Inn & Suites by Wyndham Fremont Silicon Valley, Fremont
Proposed Dual-Brand AC Hotel & Residence Inn by Marriott, Fremont
Proposed Joywell Hotel, Curio Collection, Fremont
SpringHill Suites by Marriott San Jose Fremont, Fremont
Courtyard by Marriott Fresno, Fresno
Homewood Suites by Hilton Fresno, Fresno
SpringHill Suites by Marriott Fresno, Fresno
Benbow Historic Inn, Garberville
Motel 6, Gilroy
Quality Inn & Suites Gilroy, Gilroy
Hyatt Place Glendale Los Angeles, Glendale
Dawn Ranch Resort, Guerneville
Proposed Lodge on Russian River, Guerneville
Proposed The River Electric, Guerneville
Ritz-Carlton Half Moon Bay, Half Moon Bay
Home2 Suites by Hilton Hayward, Hayward
Proposed Home2 Suites by Hilton Hayward, Hayward
Duchamp Hotel, Healdsburg
Hotel Trio Healdsburg, Healdsburg
Proposed Hotel, Healdsburg
Hyatt Regency Huntington Beach Resort & Spa, Huntington Beach
Hyatt Regency Indian Wells Resort & Spa, Indian Wells
Paséa Hotel & Spa, Huntington Beach
AC Hotel by Marriott Irvine, Irvine
DoubleTree by Hilton Irvine Spectrum, Irvine
Irvine Marriott, Irvine
Proposed Fairfield by Marriott, Jackson
Proposed Kings Beach Center Hotel, Kings Beach
Strawberry Lodge, Kyburz
Proposed Montage Resort & Residences La Quinta, La Quinta
Proposed Pendry Hotel & Residences La Quinta, La Quinta
Montage Laguna Beach, Laguna Beach
Proposed Hotel Laguna Beach, Laguna Beach
Courtyard by Marriott Larkspur Landing Marin County, Larkspur
Proposed Fairfield by Marriott, Lathrop
Proposed Hotel Lathrop Towne Centre, Lathrop
Proposed TownePlace Suites by Marriott, Lathrop
Extended Stay America Livermore Airway Boulevard, Livermore
GHMG Hotel (Conversion to DoubleTree by Hilton), Livermore
Motel 6 Livermore, Livermore
Proposed Homewood Suites, Livermore
Proposed Motel 6 Livingston, Livingston
Holiday Inn Express Lodi, Lodi
Proposed Downtown Lodi Hotel, Lodi
Proposed Residence Inn by Marriott, Lodi
Proposed Tru by Hilton, Lodi
Residence Inn by Marriott Long Beach, Long Beach
Proposed Morrison Hotel & Residences, Los Angeles
W Hollywood, Los Angeles
Best Western Inn of Los Gatos, Los Gatos
Proposed Manhattan Beach Hotel, Manhattan Beach
Great Wolf Lodge Manteca, Manteca
Comfort Inn Marina on the Monterey Bay, Marina
Home2 Suites by Hilton at the Dunes on Monterey Bay, Marina
Motel 6 Marina Monterey, Marina
SpringHill Suites by Marriott The Dunes on Monterey Bay, Marina
Quality Inn Martinez, Martinez
Proposed Hilton Garden Inn, Marysville
Holiday Inn Express & Suites Arcata Eureka Airport Area, McKinleyville
Proposed Fairfield by Marriott, McKinleyville
Brewery Gulch Inn, Mendocino
Hill House Inn, Mendocino
Mendocino Hotel, Mendocino
Hotel Nia, Autograph Collection, Menlo Park
Stanford Park Hotel, Menlo Park
AutoCamp Yosemite, Midpines
Proposed Residence Inn by Marriott, Millbrae
Extended Stay America San Jose Milpitas McCarthy Ranch, Milpitas
Proposed Element by Westin San Jose Milpitas, Milpitas
Proposed Hotel, Milpitas

Sheraton Hotel San Jose, Milpitas
Days Inn by Wyndham Modesto, Modesto
InterContinental The Clement Monterey, Monterey
Monterey Tides, Monterey
Motel 6, Monterey
The Monterey Hotel, Monterey
Courtyard by Marriott San Jose South Morgan Hill, Morgan Hill
Extended Stay America San Jose Morgan Hill, Morgan Hill
Residence Inn by Marriott San Jose South Morgan Hill, Morgan Hill
Aloft Mountain View, Mountain View
Extended Stay America San Jose Mountain View, Mountain View
Hilton Garden Inn Mountain View, Mountain View
Proposed Ameswell Hotel, Mountain View
Proposed Luxury Hotel, Mountain View
Shashi Hotel, Mountain View
Candlelight Inn, Napa
Embassy Suites by Hilton Napa Valley, Napa
Hilton Garden Inn Napa, Napa
Hotel Indigo Napa Valley, Napa
Marriott Napa Valley Hotel & Spa, Napa
The Meritage Resort & Spa, Napa
Proposed Four-Star Hotel, Napa
Proposed Napa Valley Hotel, Napa
Proposed Stanly Ranch, an Auberge Resort, Napa
Vista Collina Resort, Napa
Chase Suite Hotel Newark, Newark
TownePlace Suites by Marriott Newark Silicon Valley, Newark
Best Western Plus Novato Oaks Inn, Novato
Americas Best Value Inn Yosemite South Gate (Conversion to Tribute Portfolio), Oakhurst
Courtyard by Marriott Oakland Airport, Oakland
Courtyard by Marriott Oakland Downtown, Oakland
Extended Stay America Oakland Emeryville, Oakland
Marriott Oakland City Center, Oakland
Moxy by Marriott Oakland Downtown, Oakland
Proposed Boutique Hotel Oakland, Oakland
Proposed Dual-Brand Hampton & Home2 Suites by Hilton, Oakland
Proposed Embassy Suites by Hilton, Oakland
Proposed Hampton by Hilton Oakland Downtown City Center, Oakland
Proposed Moxy by Marriott Oakland Downtown, Oakland
Proposed West Elm Hotel, Oakland
Mission Pacific & The Seabird Hotel, Oceanside
DoubleTree by Hilton Anaheim Orange County, Orange
Proposed Hampton by Hilton, Oroville
Proposed Hotel Monterey, Pacific Grove
Proposed Kimpton Hotel Pacific Grove, Pacific Grove
Proposed Pacific Grove Hotel, Pacific Grove
Pacifica Lighthouse Hotel, Trademark Collection by Wyndham, Pacifica
Margaritaville Palm Springs (Conversion to InterContinental), Palm Springs
Saguaro Palm Springs, Palm Springs
Nest Palo Alto, Palo Alto
Proposed Graduate Hotel, Palo Alto
Proposed Stanford Research Park Hotel, Palo Alto
Travelodge Palo Alto, Palo Alto
The Nest Hotel, Palo Alto
Proposed Patterson Hotel, Patterson
Courtyard by Marriott Petaluma Sonoma County, Petaluma
Home2 Suites by Hilton Petaluma, Petaluma
Motel 6 Petaluma, Petaluma
Proposed Home2 Suites by Hilton, Petaluma
Sheraton Sonoma County, Petaluma
Extended Stay America Pleasant Hill Buskirk Avenue, Pleasant Hill
Hyatt House Pleasant Hill, Pleasant Hill
Residence Inn by Marriott Pleasant Hill Concord, Pleasant Hill
AC Hotel by Marriott Pleasanton, Pleasanton
Extended Stay America Pleasanton Chabot Drive, Pleasanton
Four Points by Sheraton Pleasanton, Pleasanton
Hyatt Place Sacramento Rancho Cordova, Rancho Cordova
Residence Inn by Marriott Sacramento Rancho Cordova, Rancho Cordova
Terranea Resort, Rancho Palos Verdes
Gaia Hotel & Spa Redding, Ascend Hotel Collection, Redding
Proposed Hampton by Hilton Redwood City, Redwood City
Proposed Holiday Inn Express & Suites, Redwood City
Proposed Hotel, Redwood City
Pullman San Francisco Bay, Redwood City
Extended Stay America Richmond Hilltop Mall, Richmond
Marina Bay Inn & Suites (Conversion to SureStay Plus Hotel), Richmond
Fairfield by Marriott Santa Rosa Rohnert Park, Rohnert Park
Motel 6 Rohnert Park, Rohnert Park
Proposed Fairfield by Marriott Santa Rosa Rohnert Park, Rohnert Park
Proposed Hilton Garden Inn, Rohnert Park
Proposed Home2 Suites by Hilton, Rohnert Park
Proposed Hotel, Rohnert Park
Proposed Hotel, Rosamond
Auberge du Soleil, an Auberge Resort, Rutherford
Canterbury Inn (Conversion to SureStay Hotel), Sacramento

The Citizen Hotel, Autograph Collection, Sacramento
Crowne Plaza Sacramento Northeast, Sacramento
Courtyard by Marriott Sacramento Midtown, Sacramento
Hampton Inn & Suites at CSUS, Sacramento
Hotel Med Park, Ascend Hotel Collection, Sacramento
Hyatt Centric Downtown Sacramento, Sacramento
Hyatt Regency, Sacramento
La Quinta Inn by Wyndham Sacramento North, Sacramento
Proposed Aloft Sacramento North Natomas, Sacramento
Proposed Dual-Brand Hyatt Place & Hyatt House, Sacramento
Proposed Element by Westin, Sacramento
Proposed Everhome Suites, Sacramento
Proposed Fairfield by Marriott Sacramento Airport North Natomas, Sacramento
Proposed Four-Star Hotel, Sacramento
Proposed Hampton by Hilton Downtown Sacramento, Sacramento
Proposed Hilton Garden Inn Sacramento Airport Natomas, Sacramento
Proposed Holiday Inn Sacramento, Sacramento
Proposed Home2 Suites by Hilton Sacramento Airport Natomas, Sacramento
Proposed Home2 Suites by Hilton Sacramento CSUS, Sacramento
Proposed Hotel Sacramento, Sacramento
Proposed Hyatt Centric Downtown Sacramento, Sacramento
Proposed Hyatt House Sacramento Natomas, Sacramento
Proposed Hotel, Sacramento
TownePlace Suites by Marriott Cal Expo, Sacramento
Vagabond Inn, Sacramento
Meadowood Napa Valley, Saint Helena
Wine Country Inn & Gardens, Saint Helena
Motel 6 Salinas North, Salinas
Motel 6 Salinas South, Salinas
Proposed Fairfield by Marriott, San Andreas
Extended Stay America San Francisco San Carlos, San Carlos
Omni Hotel San Diego, San Diego
Proposed Fifth Avenue Landing Convention Hotel, San Diego
Proposed Pacific Beach Hotel, San Diego
Ramada San Diego, San Diego
Residence Inn San Diego Del Mar, San Diego
St. James Hotel (Conversion to Palihotel), San Diego
Wyndham San Diego Bayside, San Diego
Amazon Hotel, San Francisco
Americania Hotel, San Francisco
Barnes San Francisco, Tapestry Collection by Hilton, San Francisco
Carriage Inn, San Francisco
Club Quarters San Francisco, San Francisco
Comfort Inn by the Bay, San Francisco
Cornell Hotel de France, San Francisco
Da Vinci Villa, San Francisco
Embassy Hotel, San Francisco
Executive Hotel Vintage Court San Francisco, San Francisco
Fairfax Hotel, San Francisco
Fairmont San Francisco, San Francisco
Golden Gate Hotel, San Francisco
Good Hotel, San Francisco
Hayes Valley Inn, San Francisco
Hilton Parc 55, San Francisco
Hilton San Francisco Financial District, San Francisco
Hilton San Francisco Union Square, San Francisco
Holiday Inn Fisherman's Wharf San Francisco, San Francisco
Hotel Adagio, Autograph Collection, San Francisco
Hotel Des Arts, San Francisco
Hotel G, San Francisco
Hotel Griffon, San Francisco
Hotel Triton, San Francisco
Hotel Vertigo, San Francisco
Hotel Whitcomb, San Francisco
Huntington Hotel, San Francisco
Hyatt Place San Francisco Downtown, San Francisco
Hyatt Regency San Francisco Downtown SOMA, San Francisco
InterContinental San Francisco, San Francisco
Kinney Hotel, San Francisco
King George Hotel, San Francisco
Marine's Memorial Club & Hotel, San Francisco
Mystic Hotel, San Francisco
Nineteen 06 Mission, San Francisco
Nob Hill Inn, San Francisco
Palihotel San Francisco, San Francisco
Parc 55, a Hilton Hotel, San Francisco
Proposed 420 Sutter Hotel, San Francisco
Proposed AC Hotel by Marriott & Teatro ZinZanni, San Francisco
Proposed Bay Hotel, San Francisco
Proposed Four-Star Hotel, San Francisco
Proposed Hilton Garden Inn, San Francisco
Proposed Kimpton Alton Hotel, San Francisco
Proposed MEININGER Hotel, San Francisco
Proposed One Vassar Hotel, San Francisco
Proposed YOTEL San Francisco, San Francisco
Ritz-Carlton, San Francisco
San Francisco Proper Hotel, San Francisco

Scarlet Huntington Hotel, San Francisco
Sheraton Fisherman's Wharf, San Francisco
St. Regis San Francisco, San Francisco
Stanford Court Hotel, San Francisco
The Battery, San Francisco
Town House Motel, San Francisco
Villa Florence, San Francisco
Washington Square Inn, San Francisco
Westin Saint Francis San Francisco on Union Square, San Francisco
YOTEL San Francisco, San Francisco
Aloft Santa Clara, San Jose
Aloft San Jose Cupertino, San Jose
Comfort Suites San Jose Airport, San Jose
Extended Stay America San Jose Downtown, San Jose
Extended Stay America San Jose Edenvale North, San Jose
Extended Stay America San Jose Edenvale South, San Jose
Extended Stay America Premier Suites San Jose Airport, San Jose
Extended Stay America San Jose Santa Clara, San Jose
Fairmont San Jose, San Jose
Fairmont San Jose (Conversion to Signia by Hilton), San Jose
Four Points by Sheraton San Jose Airport, San Jose
Holiday Inn San Jose Silicon Valley, San Jose
Hyatt House San Jose Airport, San Jose
Hyatt Place San Jose Airport, San Jose
Hyatt Place San Jose Downtown, San Jose
Motel 6 San Jose Airport, San Jose
Motel 6 San Jose South, San Jose
Proposed Cambria Hotel & Suites, San Jose
Proposed Home2 Suites by Hilton, San Jose
Proposed Hyatt Place, San Jose
Proposed La Quinta by Wyndham, San Jose
Proposed Wingate by Wyndham San Jose, San Jose
Residence Inn & SpringHill Suites by Marriott San Jose Airport, San Jose
SpringHill Suites by Marriott San Jose Airport, San Jose
Signia by Hilton San Jose, San Jose
Wyndham Garden San Jose Airport, San Jose
Wyndham Garden San Jose Silicon Valley, San Jose
Nimitz Motel, San Leandro
The Marina Inn on San Francisco Bay, San Leandro
Best Western San Mateo Los Prados Inn, San Mateo
Extended Stay America San Francisco San Mateo SFO, San Mateo
Holiday Inn & Suites San Mateo San Francisco SFO, San Mateo
Proposed Hampton by Hilton, San Mateo
San Mateo Marriott San Francisco Airport, San Mateo
San Mateo SFO Airport Hotel, San Mateo
Four Points by Sheraton San Rafael, San Rafael
Extended Stay America San Ramon Bishop Ranch East, San Ramon
Extended Stay America San Ramon Bishop Ranch West, San Ramon
Embassy Suites by Hilton Santa Ana Orange County Airport, Santa Ana
La Quinta Inn & Suites by Wyndham Santa Barbara Downtown, Santa Barbara
Mar Monte Hotel, Unbound Collection, Santa Barbara
Palihouse Santa Barbara, Santa Barbara
Proposed 710 State Street Hotel Santa Barbara, Santa Barbara
Spanish Garden Inn, Santa Barbara
AC Hotel by Marriott San Jose Santa Clara, Santa Clara
Element by Westin Santa Clara, Santa Clara
Embassy Suites by Hilton Silicon Valley Santa Clara, Santa Clara
Motel 6, Santa Clara
Proposed California's Great America Hotel, Santa Clara
Proposed Dual-Brand Hampton & Home2 Suites by Hilton, Santa Clara
Proposed Dual-Brand Hotel (Mission College), Santa Clara
Proposed Dual-Brand Hotel (Mariani's Inn Redevelopment), Santa Clara
Sterling Inn, Santa Clara
TownePlace Suites by Marriott San Jose Santa Clara, Santa Clara
Woodcrest Hotel, Santa Clara
Hilton Santa Cruz Scotts Valley, Santa Cruz
Hyatt Place Santa Cruz, Santa Cruz
Proposed Fairfield by Marriott Santa Cruz, Santa Cruz
Proposed Hampton by Hilton, Santa Cruz
Proposed Hyatt Place Santa Cruz, Santa Cruz
Proposed La Bahia Hotel, Santa Cruz
Salt Air Lodge, Santa Cruz
Motel 6 Santa Nella Los Banos Interstate 5, Santa Nella Village
AC Hotel by Marriott Santa Rosa Downtown, Santa Rosa
Hilton Sonoma Wine Country, Santa Rosa
Hotel La Rose, Santa Rosa
Hotel Santa Rosa (Conversion to Ascend Hotel Collection), Santa Rosa
Hyatt Regency Sonoma Wine Country, Santa Rosa
Motel 6 Santa Rosa North, Santa Rosa
Motel 6 Santa Rosa South, Santa Rosa
Proposed Hyatt Place, Santa Rosa
Proposed Hotel E, Santa Rosa
Proposed Stonehouse Hotel, Santa Rosa
Proposed Tru by Hilton, Santa Rosa
The Sandman Hotel, Santa Rosa

Cavallo Point Lodge, Sausalito
Hilton Santa Cruz Scotts Valley, Scotts Valley
Proposed Hotel Barlow, Sebastopol
Proposed Hotel Sebastopol, Sebastopol
Wine Valley Inn & Cottages, Solvang
Cinnamon Bear Creekside Inn, Sonoma
MacArthur Place, Sonoma
Proposed Hanna Center Hotel, Sonoma
3 Peaks Resort & Beach Club, South Lake Tahoe
Beach Retreat & Lodge Tahoe, South Lake Tahoe
DoubleTree by Hilton San Francisco South Airport Boulevard, South San Francisco
Four Points by Sheraton Hotel & Suites San Francisco Airport, South San Francisco
La Quinta Inn & Suites by Wyndham San Francisco Airport North, South San Francisco
Proposed Hotel, South San Francisco
Meadowood Napa Valley, St. Helena
Wine Country Inn & Cottages, St. Helena
Extended Stay America Stockton March Lane, Stockton
Holiday Inn Express Stockton Southeast, Stockton
La Quinta Inn by Wyndham, Stockton
Proposed Dual-Brand Fairfield & TownePlace Suites by Marriott, Stockton
BLVD Hotel & Studios, Studio City
Holiday Inn Express & Suites Suisun City, Suisun City
AC Hotel by Marriott Sunnyvale Cupertino, Sunnyvale
AC Hotel by Marriott Sunnyvale Moffett Park, Sunnyvale
Aloft Sunnyvale, Sunnyvale
Corporate Inn, Sunnyvale
Domain Hotel Silicon Valley, Sunnyvale
Extended Stay America San Jose Sunnyvale, Sunnyvale
Grand Hotel Sunnyvale, Sunnyvale
Hotel Mathilda at Moffett Park, Sunnyvale
Motel 6 Sunnyvale North, Sunnyvale
Motel 6 Sunnyvale South, Sunnyvale
Proposed 1 Hotel Sunnyvale, Sunnyvale
Proposed Home2 Suites by Hilton, Sunnyvale
Proposed M Social Hotel, Sunnyvale
Proposed Treehouse Silicon Valley, Sunnyvale
Quality Inn & Suites (Conversion to Comfort Inn), Sunnyvale
Sheraton Sunnyvale, Sunnyvale
Tetra Hotel, Autograph Collection, Sunnyvale
The Grand Hotel, Sunnyvale
Extended Stay America Stockton Tracy, Tracy
Fairfield by Marriott Tracy, Tracy
Hampton by Hilton Tracy, Tracy
Proposed TownePlace Suites by Marriott, Tracy
Proposed La Quinta by Wyndham, Turlock
Courtyard by Marriott Torrance Palos Verdes, Torrance
Proposed Hotel Truckee, Truckee
Extended Stay America Union City Dyer Street, Union City
Fairfield by Marriott Vacaville, Vacaville
Quality Inn & Suites, Vacaville
Residence Inn by Marriott Vacaville, Vacaville
Country Inn & Suites by Radisson Vallejo Napa Valley, Vallejo
Great Western Inn, Vallejo
Howard Johnson Inn & Suites Vallejo, Vallejo
Motel 6 Vallejo Six Flags East, Vallejo
Proposed Waterfront Hotel, Vallejo
El Cortez Motel, Van Nuys
Marriott Walnut Creek, Walnut Creek
Motel 6 Walnut Creek, Walnut Creek
Proposed Residence Inn by Marriott Walnut Creek, Walnut Creek
Motel 6, Watsonville
Proposed Home2 Suites by Hilton, Watsonville
Holloway Motel, West Hollywood
Proposed TownePlace Suites by Marriott, Wildomar
Proposed La Quinta by Wyndham, Woodland
Hotel Yountville, Yountville

CONNECTICUT
Hyatt Regency Greenwich, Old Greenwich

FLORIDA
Hilton Garden Inn Fort Meyers, Fort Myers
The Diplomat Beach Resort, Curio Collection, Hollywood
EAST Miami, Miami

GEORGIA
Four Seasons Atlanta, Atlanta

HAWAII – O‘ahu
Proposed Dual-Brand Hotel, ‘Ewa Beach
Proposed Hoakalei Hotel ‘Ewa Beach, ‘Ewa Beach
Ambassador Hotel Waikiki, Honolulu
Hilton Garden Inn Waikiki Beach, Honolulu
Hilton Waikiki Beach, Honolulu
Hyatt Centric Waikiki Beach, Honolulu
Hyatt Regency Waikiki Beach Resort & Spa, Honolulu
The Laylow, Autograph Collection, Honolulu
Lotus Honolulu at Diamond Head, Honolulu
Outrigger Reef Waikiki Beach Resort, Honolulu
Park Shore Waikiki, Honolulu
Polynesian Plaza, Honolulu
Prince Waikiki & Hawaii Prince Golf Club, Honolulu
Proposed Chinatown Hotel, Honolulu

Proposed Homewood Suites by Hilton Honolulu Airport, Honolulu
Proposed Mandarin Oriental & Residences, Honolulu
Queen Kapiʻolani Hotel, Honolulu
Romer Waikiki at The Ambassador, Honolulu
Waikiki Resort Hotel, Honolulu
Waikiki Sand Villa Hotel, Honolulu
Turtle Bay Resort, Kahuku
Four Seasons Resort Oʻahu at Ko Olina, Kapolei
Proposed Ko Olina Resort Development, Kapolei
Proposed Koa Ridge Development, Waipahu

HAWAII – Maui
Courtyard by Marriott Maui Kahului Airport, Kahului
Maui Seaside Hotel (Conversion to Tapestry by Hilton), Kahului
Maui Coast Hotel, Kihei
Kaʻanapali Beach Hotel, Lahaina
Montage Kapalua Bay, Lahaina
Ritz-Carlton Kapalua, Lahaina
Royal Lahaina Resort, Lahaina
Westin Maui Resort & Spa Kaʻanapali, Lahaina
Paʻia Inn, Paʻia
Four Seasons Resort Maui at Wailea, Wailea
Grand Wailea, a Waldorf Astoria Resort, Wailea
Makena Golf & Beach Club, Wailea
Proposed Lifestyle/Boutique Hotel, Wailea

HAWAII – Hawai'i
Grand Naniloa Hotel Hilo, a DoubleTree by Hilton, Hilo
Wild Ginger Hotel, Hilo
Four Seasons Resort Hualalai, Kailua-Kona
Proposed Kona Village, a Rosewood Resort, Kailua-Kona
Sheraton Kona Resort & Spa at Keauhou Bay, Kailua-Kona
Fairmont Orchid Hawaii Hotel, Kohala Coast
Marriott Waikoloa Beach Resort & Spa, Waikoloa
Hapuna Beach Prince Hotel & Hapuna Golf Course, Waimea
Mauna Kea Beach Hotel, Autograph Collection & Mauna Kea Golf Course, Waimea

HAWAII – Kauaʻi
1 Hotel Hanalei Bay, Princeville
Princeville Resort Kaua'i, Princeville
Courtyard by Marriott Kauaʻi at Coconut Beach, Kapaʻa
Courtyard by Marriott Kauaʻi at Coconut Beach (Conversion to Sheraton), Kapaʻa
Proposed Coco Palms Resort, a Marriott Resort, Kapa'a
Proposed Coco Palms Resort, Unbound Collection by Hyatt, Kapaʻa
Sheraton Kauai Coconut Beach Resort Kapa'a
Koʻa Kea Hotel & Resort, Koloa
Proposed Hale Malana, Curio Collection, Lihue

ILLINOIS
InterContinental Chicago Magnificent Mile, Chicago

LOUISIANA
Days Inn & Suites Kinder, Kinder
Wyndham Garden, Lafayette

MISSOURI
Residence Inn by Marriott Kansas City Airport, Kansas City

NEVADA
Hardman House Hotel (Conversion to BW Signature Collection), Carson City

NEW YORK
InterContinental New York Times Square, New York
Pod 39 Hotel, New York
Renaissance New York Times Square, New York

NORTH CAROLINA
Embassy Suites by Hilton Charlotte Concord Golf Resort & Spa, Charlotte

OKLAHOMA
Holiday Inn Express Hotel & Suites, Guymon
Embassy Suites by Hilton Norman Hotel & Conference Center, Norman

OREGON
Hyatt Centric Portland Downtown, Portland
Residence Inn by Marriott Portland Downtown Pearl District, Portland

TENNESSEE
Embassy Suites by Hilton Nashville SE Murfreesboro, Murfreesboro

TEXAS
Courtyard by Marriott Dallas Allen, Allen
Proposed Texas A&M Hotel and Conference Center, College Station
Grand Hyatt DFW, Dallas
Proposed Saint Elm Hotel, Dallas
Econo Lodge Hillsboro I-35, Hillsboro
Four Seasons Houston Downtown, Houston
Hilton Garden Inn Houston IAH, Houston
Interstate Motor Lodge, Houston
JW Marriott Houston Downtown, Houston
Proposed Holiday Inn & Suites Houston NW Willowbrook, Houston
Proposed Hotel ZaZa Memorial City & Memorial City Apartments, Houston
Proposed Montrose Hotel, Houston

Westin Oaks & Galleria, Houston
Four Seasons Resort & Club Dallas at Las Colinas, Irving
The Las Colinas Resort, Irving
Proposed Home2 Suites by Hilton, Kingwood
Proposed Days Inn & Suites by Wyndham Port Arthur, Port Arthur
Days Inn Lackland, San Antonio
Proposed Thompson Hotel, San Antonio
Proposed Red Lion Inn & Suites, Texas City

PORTFOLIO WORK
8-Pack Golden State Hospitality Portfolio, Northern California
4-Pack Hyatt Hotels Portfolio, California & Oregon
6-Pack Motel 6 Portfolio, California
7-Pack Reneson Hotels Portfolio, Northern California
5-Pack Full-Service Hotels Portfolio, California
2-Pack Hyatt Hotels, Northern California
Multiple 6-Pack Portfolios 6 Full-Service Hotels, California and Hawaii
3-Pack Full-Service Hotel Portfolio, California and Hawaii

Katy Black, MAI

EMPLOYMENT

2013 to present	HVS CONSULTING AND VALUATION SERVICES Denver, Colorado
2010–2013	DOUBLETREE BY HILTON AKRON/FAIRLAWN, RDA MANAGEMENT Akron, Ohio
2008–2010	HILTON AKRON/FAIRLAWN, RDA MANAGEMENT Akron, Ohio
2007	CROWNE PLAZA QUAKER SQUARE, RDA MANAGEMENT Akron, Ohio

EDUCATION AND OTHER TRAINING

MS – Accounting, University of Akron

BS – Hotel, Restaurant, and Institutional Management, University of Delaware

Other Specialized Training Classes Completed:
Uniform Standards of Professional Appraisal Practice
Basic Appraisal Principles
Basic Appraisal Procedures
General Appraiser Income Approach (Parts I and II)
General Appraiser Market Analysis and HBU
General Appraiser Site Valuation and Cost Approach
General Appraiser Sales Comparison Approach
Statistics, Modeling and Finance
General Appraiser Report Writing and Case Studies
Advanced Income
Advanced Concepts & Case Studies
Advanced Market Analysis & HBU
Quantitative Analysis
Basics of Expert Witness
Land Subject to Ground Leases
Basic Hotel Appraising
Owner-Occupied Commercial Properties
Income Approach
Sales Comparison Approach

EDUCATION (CONT'D)	Appraisal of REO and Foreclosure CA Law Cultural Bias Biennial USPAP Updates (Last Update: 2024)
STATE CERTIFICATION	Arizona, Colorado, Montana, New Mexico, Utah, Wyoming

PUBLISHED ARTICLES

HVS Journal	"Notable Resort Developments in Telluride," co-authored with Ryan Mark, December 2023
HVS Journal	"Short-Term Rentals and Lodging News in Lake Tahoe," March 2023
HVS Journal	"2023 Hotel Performance Outlook for Denver," March 2023
HVS Journal	"A Review of Equity Yields and Discount Rates in a Post-COVID Environment," October 2022
HVS Journal	"HVS Market Pulse – Salt Lake City, Utah," co-authored with Ryan Mark, September 2021
HVS Journal	"HVS Market Pulse: Wyoming & Montana," co-authored with Lauren Reynolds, December 2020
HVS Journal	"Equity Yield Rates Shifting Higher as Interest Rates Decline and Discount Rates Remain Steady," November 2019
HVS Journal	"HVS Market Pulse: Colorado Springs, Colorado," October 2019
HVS Journal	"HVS Market Pulse: Gaylord Rockies – Impact on Denver Lodging Submarkets," co-authored with Ryan Mark, February 2019
HVS Journal	"HVS Market Pulse: Salt Lake City, Utah," co-authored with Ryan Mark, January 2017
HVS Journal	"HVS Market Pulse: Colorado Springs 2016," co-authored with Patrick Bursey, August 2016

PROFESSIONAL AFFILIATIONS	Appraisal Institute – Designated Member (MAI)

EXAMPLES OF PROPERTIES APPRAISED OR EVALUATED

PORTFOLIO ANALYSIS
Portfolio of 40 InTown Suites Hotels
Portfolio of 11 Hilton-Branded Hotels
Portfolio of 4 Resorts in Eagle County
Portfolio of 5 Proposed Hotels
Portfolio of 4 DoubleTree Properties
Portfolio of 4 Residence Inn Properties
Portfolio of 2 Best Western Properties, Colorado Springs
Portfolio of 58 InTown Suites Hotels
Portfolio of 22 Limited- and Select-Service Hotels
Tharaldson Portfolio of 89 Hotels
Portfolio of 15 Great Wolf Lodge/Radisson Properties
6 Motel 6 Properties, Utah
Portfolio of 7 Under Canvas Properties, Resort Locations
Portfolio of 10 Full-Service Hotels, Western and Southern U.S.
Portfolio of 2 Hotels, Waco, Texas
Portfolio of 2 Limited-Service Hotels in Estes Park, Colorado
Portfolio of 5 Shilo Inn Hotels, Northwestern U.S.
Portfolio of 4 Extended-Stay Hotels, Alabama and Texas
Portfolio of 4 Club Quarters Hotels, Metropolitan Cities

ALABAMA
Comfort Suites, Daphne
Best Western Plus Daphne Inn & Suites, Spanish Fort

ARIZONA
Proposed TownePlace Suites Anthem, Antham
Hampton by Hilton Phoenix/Chandler, Chandler
Hilton Phoenix Chandler, Chandler
Proposed Everhome Suites, Chandler
Proposed Residence Inn, Chandler
Proposed TownePlace Suites by Marriott, Chandler
Proposed WoodSpring Suites at Price & Willis, Chandler
Proposed WoodSpring Suites Chandler, Chandler
Proposed WoodSpring Suites Gilbert, Gilbert
Proposed Hotel, Glendale
Proposed WoodSpring Suites Glendale, Glendale
Renaissance Phoenix Glendale Hotel & Spa, Glendale
Quality Inn Holbrook, Holbrook
Hampton Inn, Lake Havasu City
Proposed Everhome Suites Mesa, Mesa
Proposed Homewood Suites and Hilton Garden Inn, Mesa
Proposed Hampton Inn & Suites, Page
Mountain Shadows Resort Paradise Valley, Paradise Valley
Arizona Grand Resort, Phoenix
Proposed Hyatt Place Downtown Phoenix, Phoenix
Proposed WoodSpring Suites Phoenix, Phoenix
Renaissance Phoenix Downtown, Phoenix
Waldorf Astoria Arizona Biltmore, Phoenix
Great Wolf Lodge Talking Stick, Scottsdale
Hampton Inn, Scottsdale
Proposed AC by Marriott Scottsdale Old Town, Scottsdale
Proposed Holiday Inn, Scottsdale
Proposed Signia at Talking Stick Resort, Scottsdale
Proposed WoodSpring Suites, Tolleson
Proposed My Place Hotel Cortaro Tucson, Tucson
Proposed My Place Hotel Tucson, Tucson
Proposed SpringHill Suites, Tucson
Proposed Cherry Road Vineyards, Yavapai County

ARKANSAS
Clarion Resort On The Lake Hot Springs, Hot Springs National Park

CALIFORNIA
Hilton, Anaheim
Sheraton Park, Anaheim
Hampton Inn & Suites, Arroyo Grande
Proposed WoodSpring Suites Bellflower, Bellflower
La Quinta Inn Berkeley, Berkeley
Ventana Inn & Spa, Big Sur
Embassy Suites, Brea
Proposed Hotels, Brisbane
Proposed Hampton Inn, Buena Park
Cambria Pines Lodge, Cambria
Carmel Mission Inn, Carmel
Carriage House Inn, Carmel
The GlenRoy, Coachella
Hyatt House, Coachella
Glen Ivy Hot Springs, Corona
Park Inn by Radisson Covina, Covina
Residence Inn by Marriott San Jose Cupertino, Cupertino
Monarch Beach Resort, Dana Point
Furnace Creek, Death Valley
Oasis at Death Valley, Death Valley
Hampton Inn & Suites, Folsom
Proposed Home2 Suites by Hilton Fresno, Fresno
Hilton Garden Inn Grover Beach, Grover Beach
AutoCamp Russian River, Guerneville
Half Moon Bay Lodge, Half Moon Bay
Proposed Resort Hopland, Hopland
Proposed AC Hotel, Irvine
Pacific Edge Hotel, Laguna Beach
La Quinta Resort & Club A Waldorf Astoria Resort, La Quinta
Proposed Pendry La Quinta, La Quinta
Found Hotel Santa Monica, Los Angeles
Four Seasons Hotel Los Angeles at Beverly Hills, Los Angeles
Dream Hollywood, Los Angeles
Westin Bonaventure Hotel & Suites, Los Angeles

Malibu Beach Inn, Malibu
Proposed Rancho Malibu Glamping Resort & Campground, Malibu
Proposed Great Wolf Manteca, Manteca
Proposed Hotel - Merced Gateway, Merced
AutoCamp Yosemite, Midpines
Proposed WoodSpring Suites Moreno Valley, Moreno Valley
DoubleTree by Hilton Anaheim Orange County, Orange
Pullman San Francisco Bay Hotel, Redwood City
Proposed Hotels - Placer Creek Development, Rocklin
Proposed Hotel Sacramento, Sacramento
Continental Motel, Salinas
Proposed Hotel Salinas, Salinas
Proposed the Lodge at San Clemente, San Clemente
DoubleTree by Hilton San Diego Del Mar, San Diego
InterContinental, San Diego
Marriott San Diego Mission Valley, San Diego
San Diego Marriott Del Mar, San Diego
Sheraton San Diego Hotel & Marina, San Diego
Battery, San Francisco
Hotel Majestic, San Francisco
Scarlet Huntington, San Francisco
Stanford Court, San Francisco
Proposed Sheraton Hotel, San Gabriel
Proposed El Paseo Hotel, San Jose
Embassy Suites, Santa Ana
Hilton Santa Cruz Scotts Valley, Santa Cruz
Proposed Hyatt Place, Santa Cruz
Mayacama Golf Club, Santa Rosa
Cavallo Point Lodge, Sausalito
Best Western Plus Carriage Inn, Sherman Oaks
Proposed Paraiso Springs Resort, Soledad
Alisal Ranch, Solvang
Beach Retreat & Lodge Tahoe, South Lake Tahoe
Best Western Station House Inn South Lake Tahoe, South Lake Tahoe
Proposed Holiday Inn, South San Francisco
Embassy Suites, Temecula
Ritz-Carlton Lake Tahoe, Truckee
Proposed Ofland Hotel Joshua Tree, Twentynine Palms
Hyatt Regency Valencia, Valencia
London West Hollywood at Beverly Hills, West Hollywood
Proposed Fairfield Inn & Suites by Marriott, Winter
Proposed SpringHill Suites Yuba City, Yuba City

COLORADO

Proposed Hilton Garden Inn, Arvada
Proposed Boomerang Hotel, Aspen
Holiday Inn Express & Suites Denver Aurora Medical Campus, Aurora
Hyatt Place Denver Airport, Aurora
Proposed Courtyard by Marriott, Aurora
Proposed Hilton Aurora, Aurora
Proposed WoodSpring Suites Aurora, Aurora
Proposed Element Hotel, Basalt
Park Hyatt, Beaver Creek
Courtyard by Marriott, Boulder
Hyatt Place Boulder Pearl Street, Boulder
Marriott, Boulder
Proposed Boutique Hotel Boulder, Boulder
Proposed Mockingbird Hotel, Boulder
Residence Inn by Marriott Boulder, Boulder
St. Julien, Boulder
Best Western Brighton Inn, Brighton
Proposed Hotel Brighton, Brighton
Proposed Select-Service Hotel, Brighton
Proposed Fairfield Inn by Marriott, Broomfield
Proposed WoodSpring Suites Broomfield, Broomfield
Proposed WoodSpring Suites Castle Rock, Castle Rock
Hotel St. Cloud, Canon City
Proposed WoodSpring Suites Centennial, Centennial
Staybridge Suites Denver Tech Center, Centennial
Academy Hotel, Colorado Springs
Fairfield Inn & Suites Colorado Springs North/Air Force Academy, Colorado Springs
Great Wolf Lodge, Colorado Springs
Holiday Inn Colorado Springs Airport, Colorado Springs
Holiday Inn Express Hotel & Suites, Colorado Springs
Hyatt House, Colorado Springs
Proposed Courtyard by Marriott, Colorado Springs
Proposed Dual-Brand SpringHill Suites by Marriott and Element by Westin, Colorado Springs
Proposed WoodSpring Suites Colorado Springs, Colorado Springs
Radisson, Colorado Springs
SpringHill Suites by Marriott Colorado Springs South, Colorado Springs
TownePlace Suites by Marriott Colorado Springs South, Colorado Springs
WoodSpring Suites, Colorado Springs
Proposed Hotel at Wildwood Casino, Cripple Creek
Art Hotel Denver, Curio Collection by Hilton, Denver
Brown Palace, Denver
Courtyard by Marriott Denver Stapleton, Denver
Embassy Suites DIA, Denver
Halcyon a Hotel in Cherry Creek, Denver
Holiday Inn Express Denver Downtown, Denver
Hyatt House Denver Airport, Denver

Hyatt Regency Denver Tech Center, Denver
NATIV Hotel Denver, Denver
Proposed AC Hotel by Marriott Pena Station, Denver
Proposed Boutique Hotel – Highlands, Denver
Proposed Crawford Hill Mansion Boutique Hotel, Denver
Proposed Extended Stay America Premier Suites Denver Airport, Denver
Proposed Four Points by Sheraton Gateway Park, Denver
Proposed Four Points Gateway Park, Denver
Proposed Fairfield Inn & Suites, Denver
Proposed Hotel University of Denver Campus Hotel, Denver
Proposed Hyatt Place DIA, Denver
Proposed Wingate Denver, Denver
Proposed Vib Hotel Denver Rino, Denver
Proposed AC by Marriott, Durango
Proposed Hampton Inn & Suites, Durango
AmericInn, Eagle
Inn & Suites at Riverwalk, Edwards
Proposed Condo Hotel Edwards, Edwards
Courtyard by Marriott, Englewood
Even Hotels Denver Tech Center-Englewood, Englewood
Hilton Denver Inverness, Englewood
Hilton Garden Inn Denver South Meridian, Englewood
Inverness Hotel & Conference Center, Englewood
Proposed TownePlace Suites DTC, Englewood
Residence Inn by Marriott, Englewood
Proposed Mary's Lake Lodge, Estes Park
Comfort Suites Golden West on Evergreen Parkway, Evergreen
Proposed WoodSpring Suites Firestone, Firestone
Value Place Denver Firestone, Firestone
Cambria Suites, Fort Collins
Homewood Suites, Fort Collins
Marriott, Fort Collins
Proposed WoodSpring Suites Fort Collins, Fort Collins
Proposed Frisco Foote's Rest, a Tribute Hotel, Frisco
Hampton Inn & Suites Denver Cherry Creek, Glendale
Staybridge Suites Cherry Creek, Glendale
Proposed WoodSpring Suites Golden, Golden
Proposed Everhome Suites Grand Junction, Grand Junction
Fairfield Inn & Suites by Marriott, Greeley
Proposed WoodSpring Suites Greeley, Greeley
Courtyard by Marriott Denver Tech Center, Greenwood Village
DoubleTree by Hilton Denver Tech Center, Greenwood Village
Fairfield Inn by Marriott Denver Tech Center South, Highlands Ranch
Proposed Courtyard by Marriott, Highlands Ranch
Hyatt Place, Keystone
Courtyard by Marriott Southwest Lakewood, Lakewood
Hampton Inn Denver Southwest Lakewood, Lakewood
Hampton Inn Denver West Federal Center, Lakewood
Holiday Inn, Lakewood
Hyatt House Denver Lakewood at Belmar, Lakewood
Proposed Hampton by Hilton, Lakewood
Residence Inn by Marriott Southwest Lakewood, Lakewood
Holiday Inn Express, Limon
Homewood Suites by Hilton, Littleton
Proposed TownePlace Suites by Marriott, Lone Tree
Proposed Boutique Hotel, Longmont
Proposed WoodSpring Suites Longmont, Longmont
Proposed Full-Service Hotel, Loveland
Proposal Hotel Convention Center, Loveland
Proposed WoodSpring Suites Loveland, Loveland
Proposed Youth Sports Venues, Loveland
Proposed Boutique Hotel Lyons, Lyons
Proposed WoodSpring Suites Pueblo, Pueblo
Proposed Element by Westin, Silverthorne
Proposed Everhome Suites Steamboat Springs, Steamboat Springs
Viewline Resort Snowmass, Autograph Collection, Snowmass
Hotel Madeline, Telluride
Proposed Hotel, Telluride
Proposed Hotel Ajax, Telluride
Proposed Everhome Suites Timnath, Tinmath
Arrabelle at Vail Square, a RockResort, Vail
Hotel Talisa Vail, Vail
Lodge At Vail, Vail
Sebastian Vail, Vail
Fairfield Inn & Suites Denver North Westminster, Westminster
Proposed Aloft, Westminster
Proposed Home2 Suites by Hilton, Westminster
Proposed Hyatt Place, Westminster

FLORIDA
Hilton Orlando Altamonte Springs, Altamonte Springs
Proposed WoodSpring Suites Apopka, Apopka
Comfort Inn, Chipley
Proposed WoodSpring Suites Clearwater, Clearwater

Proposed WoodSpring Suites Clermont, Clermont
Proposed Everhome Suites Daytona Beach, Daytona Beach
Proposed Everhome Suites Estero, Estero
Marriott Harbor Beach Resort, Fort Lauderdale
Proposed WoodSpring Suites Fort Meyers, Fort Meyers
Proposed Everhome Suites Ft. Myers, Fort Myers
Proposed WoodSpring Suites Ft. Walton, Ft. Walton
Proposed Everhome Suites Jacksonville, Jacksonville
Proposed WoodSpring Suites Jacksonville - North New Berlin, Jacksonville
Celebration Suites, Kissimmee
Reunion Resort and Club of Orlando, Kissimmee
Proposed Everhome Suites Lakeland, Lakeland
Hilton Melbourne Rialto Place, Melbourne
Fontainebleau Miami Beach, Miami Beach
Goodtime Hotel, Miami Beach
Naples Beach Hotel, Naples
Proposed Everhome Suites Ocala, Ocala
Proposed WoodSpring Suites Orlando, Orlando
Proposed WoodSpring Suites Oxford, Oxford
Proposed WoodSpring Suites Hotel Panama City, Panama City
Proposed WoodSpring Suites Panama City Tyndall, Panama City
Proposed Embassy Suites, Panama City Beach
Proposed Everhome Suites Panama City Beach, Panama City Beach
Proposed WoodSpring Suites Pensacola, Pensacola
Proposed WoodSpring Suites Ruskin, Ruskin
Proposed Everhome Suites Sanford, Sanford
Proposed Everhome Suites Sarasota, Sarastoa
Proposed Everhome Suites Tallahassee, Tallahassee
Proposed WoodSpring Suites Tallahassee, Tallahassee
Proposed WoodSpring Suites Melbourne, West Melbourne

GEORGIA
DoubleTree by Hilton Atlanta Perimeter Dunwoody, Atlanta
Four Seasons Atlanta, Atlanta
Georgia Tech Hotel & Conference Center, Atlanta
Hotel Clermont, Atlanta
Southern Pine Cottages, Pine Mountain

HAWAII
Best Western The Plaza Hotel, Honolulu
Hilton Hawaiian Village Waikiki Beach Resort, Honolulu
Honolulu Airport Hotel, Honolulu
Ritz-Carlton Kapalua, Kapalua
Makena Beach and Golf Resort, Makena
Grand Wailea, A Waldorf Astoria Resort, Wailea

IDAHO
Residence Inn by Marriott Boise Downtown City Center, Boise
Proposed Appellation Sun Valley Hotel & Condos, Ketchum
Proposed Transient Lodging Facility, Rexburg

ILLINOIS
Best Motel, Chicago
Country Inn & Suites, Elgin
Proposed Holiday Inn Express & Suites, Mokena
Best Western, Morton Grove
Sheraton Chicago Northbrook, Northbrook
Super 8, Peru

INDIANA
Econo Lodge, South Bend
Proposed Motel 6, South Bend

KANSAS
Proposed Crowne Plaza, Aquatic Center, and Sports Complex, Goddard
Proposed Full-Service Hotel Kansas City American Royal, Kansas City

KENTUCKY
Four Points by Sheraton Louisville Airport, Louisville

LOUISIANA
AC Hotel by Marriott New Orleans Bourbon French Quarter Area, New Orleans

MARYLAND
Holiday Inn Express Baltimore at the Stadiums, Baltimore
Queenstown Harbor, Queenstown

MASSACHUSETTS
Courtyard by Marriott Boston Copley Square, Boston
Proposed AutoCamp Cape Cod, Falmouth

MINNESOTA
Homewood Suites by Hilton, Bloomington
Proposed Hotel Market Study, Edina
Courtyard by Marriott Minneapolis St. Paul Airport, Mendota Heights
DoubleTree by Hilton Hotel Detroit Novi, Novi
DoubleTree by Hilton Park Place, St. Louis Park

Embassy Suites Saint Paul Downtown, Saint Paul
Proposed Holiday Inn, Waite Park
Proposed Staybridge Suites, Waite Park

MISSISSIPPI
Palm Tree Hotel, Taylorsville

MISSOURI
Proposed WoodSpring Suites Bridgeton, Bridgeton
Proposed WoodSpring Suites Columbia, Columbia
Proposed WoodSpring Suites Independence, Independence
Proposed Hyatt Studios, Kansas City
Proposed WoodSpring Suites Kansas City, Kansas City
Proposed WoodSpring Suites Lee's Summit, Lee's Summit
Proposed Ascend Collection Hotel Ozark, Ozark
Proposed My Place Hotel St. Joseph, St. Joseph
Proposed WoodSpring Suites St. Louis, St. Louis
Proposed Everhome Suites St. Peters, St. Peters

MONTANA
Extended StayAmerica Billings - West End, Billings
Motel 6 Billings South, Billings
Fairfield Inn by Marriott, Bozeman
Hilton Garden Inn, Bozeman
Extended Stay America Great Falls Missouri River, Great Falls
Fairfield Inn by Marriott, Great Falls
Resort at Paws Up, Greenough
Motel 6, Helena
AC Hotel by Marriott Missoula Downtown, Missoula
Residence Inn by Marriott Missoula Downtown, Missoula
Holiday Inn Express, Sidney
Proposed Landmark at Whitefish, Whitefish

NEBRASKA
Days Inn, McCook

NEVADA
Home2 Suites by Hilton, Elko
Proposed Everhome Suites Enterprise, Enterprise
Cal Neva Resort & Casino, Crystal Bay
Caesars Palace, Las Vegas
Fairfield Inn by Marriott Las Vegas Airport, Las Vegas
Golden Nugget Hotel & Casino Las Vegas, Las Vegas
Hard Rock Hotel & Casino, Las Vegas
Home2 Suites by Hilton Las Vegas Convention Center, Las Vegas
Howard Johnson on East Tropicana, Las Vegas
Proposed WoodSpring Suites North Las Vegas, North Las Vegas
Proposed WoodSpring Suites Paradise, Paradise
Proposed Element by Westin Reno, Reno
Proposed Courtyard by Marriott Sparks, Sparks
Bally's Lake Tahoe Casino Resort Stateline, Stateline
Lodge at Edgewood Tahoe, Stateline
MontBleu Resort Casino & Spa, Stateline

NEW JERSEY
Ocean Resort Casino, Atlantic City
SpringHill Suites by Marriott Newark Liberty International Airport, Newark

NEW MEXICO
Holiday Inn & Suites Albuquerque Airport, Albuquerque
Holiday Inn Express Albuquerque, Albuquerque
Proposed avid by IHG, Albuquerque
Best Western, Los Alamos
DoubleTree by Hilton, Santa Fe
La Posada de Santa Fe Resort & Spa, Santa Fe
Proposed Little Pueblo Inn, Taos

NEW YORK
Proposed WoodSpring Suites Latham, Latham
CAMBRiA Hotel & Suites New York Times Square, New York
Four Seasons New York, New York
Standard High Line, New York
Tioga Downs, Nichols
Quality Inn Oneonta Cooperstown Area, Oneonta

NORTH DAKOTA
Proposed Candlewood Suites, West Fargo

OHIO
Hilton Cincinnati Netherland Plaza, Cincinnati
Proposed Hotel Dayton, Dayton
SpringHill Suites by Marriott Columbus Airport Gahanna, Gahanna
TownePlace Suites by Marriott Columbus Gahanna, Gahanna
Proposed Hotel Longaberger Basket Building, Newark
Hampton Inn & Suites Cleveland
Proposed Hotel Swisher, Somerset
Southeast Streetsboro, Streetsboro
Proposed Boutique Hotel Tiffin, Tiffin

OKLAHOMA
Holiday Inn Express Hotel & Suites OKC, Bethany
Hampton Inn, Chickasha
Holiday Inn Express Hotel & Suites, Chickasha
Embassy Suites by Hilton Norman Hotel & Conference Center, Norman

OREGON

Sunriver Resort, Sunriver

PENNSYLVANIA
Sands Casino Resort, Bethlehem
Best Western, Shippensburg

PUERTO RICO
Waldorf Astoria El Conquistador Resort, Fajardo
El Conquistador, Las Croabas
El San Juan Hotel & Casino, San Juan
Hilton Condado Plaza Hotel & Casino, San Juan

SOUTH CAROLINA
Proposed Sleep Inn Lake Wylie, Clover

TENNESSEE
Home2 Suites by Hilton Nashville Franklin Cool Springs, Franklin
Inland Suites Elvis Street, Memphis
Inland Suites Lamar Street, Memphis

TEXAS
Courtyard by Marriott Dallas Allen, Allen
DoubleTree by Hilton Hotel, Austin
Schlitterbahn Riverpark & Resort, Corpus Christi
Le Méridien Stoneleigh, Dallas
Proposed Nobu Dallas, Dallas
Fairfield by Marriott Gainesville Interstate 35, Gainesville
Proposed Ritz-Carlton Hotel/Apartments Market Square Tower Houston, Houston
Comfort Inn & Suites, Lubbock
Holiday Inn Express Hotel & Suites, Lubbock
Super 8, Lubbock
Proposed Full-Service Hotel at Fort Bend Epicenter, Rosenberg
Holiday Inn Express Hotel & Suites, Wolfforth

UTAH
Amangiri, Canyon Point
Proposed Camp Kaia, an Outdoor Citizen Resort, Kanab
Proposed Yonder Kanab, Kanab
Hilton Garden Inn Salt Lake City Layton, Layton
Proposed Dual-Brand Home2 Suites & Tru by Hilton Logan, Logan
Proposed Hampton Inn, Logan
Park Inn by Radisson Salt Lake City Midvale, Midvale
DoubleTree by Hilton Hotel Park City The Yarrow, Park City
Proposed avid Hotel St. George, St. George
Proposed Candlewood Suites St. George, St. George
DoubleTree Salt Lake City Airport, Salt Lake City
Hotel RL Salt Lake City, Salt Lake City
Marriott Salt Lake City University Park, Salt Lake City
Proposed 1 Hotel and Residences, Salt Lake City
Proposed Full-Service Hotel, Salt Lake City
Proposed Hotel and Condominium Salt Lake City, Salt Lake City
Proposed Hyatt Regency, Salt Lake City
Residence Inn by Marriott Cottonwood, Salt Lake City
Sheraton, Salt Lake City
Proposed Inn at Sundance Mountain Resort, Sundance
SpringHill Suites by Marriott Vernal, Vernal
Proposed SpringHill Suites St. George, Washington

WASHINGTON
Proposed Indigo Hotel and Condominium Development, Vancouver

WISCONSIN
Wilderness Hotel & Resort, Wisconsin Dells

WYOMING
Courtyard by Marriott, Casper
Motel 6, Casper
Proposed Extended-Stay Hotel Casper, Casper
Ramada Plaza Riverside Hotel & Convention Center, Casper
Americas Best Value Inn, Cheyenne
Motel 6, Cheyenne
Amangani, Jackson
Anvil Hotel, Jackson
Lodge at Jackson Hole, Jackson
Motel 6, Jackson
Proposed Lodge at the Snake River Sporting Club, Jackson
Proposed Pendry Hotel & Residences, Jackson
Spring Creek Ranch, Jackson
SpringHill Suites by Marriott Jackson Hole, Jackson
Rustic Inn, Jackson Hole
Motel 6, Rock Springs
Four Seasons Resort Jackson Hole, Teton Village
Snake River Lodge & Spa, Teton Village
Proposed Americas Best Value Inn, Wheatland

APPENDIX U

SOCIAL IMPACT ASSESSMENT

Draft Social Impact Assessment

Mākena Mauka

TMK Nos. (2)2-1-005:108; (2)2-1-006:036 and 057; (2)2-1-007:068, 092 and 093; (2)2-1-008:078, 079, 081 and 090; and (2)2-1-031:036(Por.)

June 2025

Prepared for:
AREG AC Makena Propco LLC, dba
Mākena Golf & Beach Club Owners

Prepared by:
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Introduction and Purpose

Introduction

The Draft Social Impact Assessment (SIA) seeks to help determine and analyze potential social effects from the proposed project and consider mitigations for the social, or human, portion of possible environmental impacts from the Mākena Mauka project, within the parameters of Hawai‘i’s environmental review process. Hawai‘i’s process requires an assessment of effects or impacts upon the environment, of which people are a part, meaning that personal and social conditions may be affected, positively and negatively. This Draft SIA documents current and ongoing efforts to learn from and respond to diverse community-based perspectives about the Mākena Mauka project. Through these efforts, the applicant seeks to assess and address reasonably expected social impacts from the proposed project.

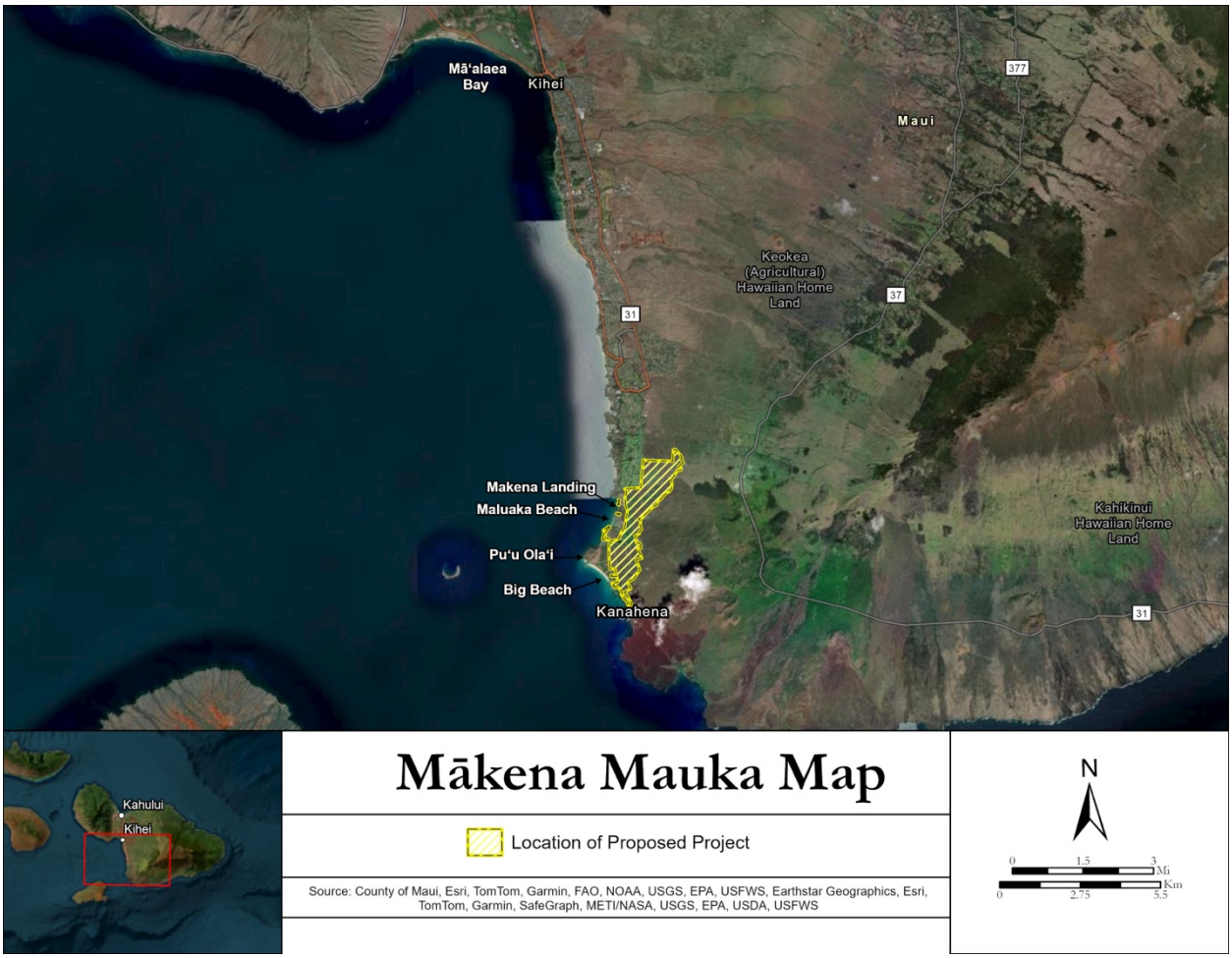
Mākena Mauka Project Description

The proposed Mākena Mauka development would be a low-density, master-planned community within the moku of Honua‘ula and the community of Makena. (See Figure 1.) The project area encompasses 1,043.47 acres, with approximately 473 acres of parcels planned for residential development. The project would include a combination of rural and single-family lots and workforce housing on site—a total of 543 market-rate units and 109 affordable housing units. Of the market-rate units, 363 would be multi-family and 180 would be single-family dwellings. Among the affordable housing units, 94 would be multi-family and 15 would be single-family homes. This blend of rural and single-family lots with multi-family residential units would all be built mauka of Makena Alanui Road.

The project would incorporate the existing 18-hole Mākena North Golf Course and the existing, but currently unused and in need of renovation, 18-hole Mākena South Golf Course. The golf amenities would include improvements such as a new clubhouse, receiving area and practice range. Other on-site, private amenities would include programs to support connectivity, a restaurant, fitness center, locker rooms, and walking, biking, and golf cart paths. Ancillary support buildings envisioned include a kitchen, golf maintenance and operations areas, staff center, and other operational buildings, such as administrative offices. The project also would include an arrival hale (house), farm operations and restrooms. Mākena Mauka proposes to include public components such as a community gathering place, hiking trails, additional public beach parking and access, and conservation and open-space areas.

Access to Mākena Mauka would be from Makena Alanui Road and include internal roadways that link individual components of the project. The project plans to further improve the existing internal roadways and connectors to Makena Alanui Road, which is owned and maintained by Maui County, as well as add improvements to internal and connecting infrastructure.

Figure 1. Location of Mākena Mauka project area



Purpose of the SIA

This Draft SIA is attached to, summarized in and informs Mākena Mauka's Draft EIS. It complements the other appended subject-matter reports to the Draft EIS, helping to ensure that the full intent of Hawai'i's "Environmental Impact Statement Rules" (Hawaii Administrative Rules (HAR) §11-200.1) is met. For example, the rules require that social effects are examined in concert with cultural, ecological, economic, historic and aesthetic effects, as part of the environment. The rules include "social conditions" as part of the environment, and they require analysis of impacts on "social welfare," among other things.

The social environment includes people's current and desired lifestyles, values, interpersonal interactions, and involvement and relationships with natural and cultural resources. Assessing how actions in the physical environment may impact the social environment belongs within the environmental review process because Hawai'i's constitution, environmental policy, and rules all require inclusion of the possible impacts, on both the natural and human environment, of a proposed program or project that would use government lands or funds or require state or county approvals (Hawaii Revised Statutes, Chapter 343 "Environmental Impact Statements," 1983).

The environmental review requirements seek to determine how a proposed project can best enable humanity and nature to positively coexist, while retaining what is special about Hawai‘i, including the natural resources, communities’ local identities, and Native Hawaiian rights and uses.

Research about current social concerns connected to Mākena Mauka included the submitted and presented public testimony from the Environmental Impact Statement Preparation Notice (EISPN) scoping period and meetings. The scoping period ran from June 8, 2024 through August 7, 2024, and the meetings were held on July 1 and July 30, 2024, in South Maui. A summary of the testimony topics can be found in Appendix A to this document.

Information gathered from this process spurred a deeper look into testifiers’ concerns and issues from a more directed social perspective. The SIA team reached out to known community members who reside, work, recreate and have historic relationships to the project area to inform the applicant from a potentially more connected perspective. The team created and analyzed an objective and confidential online survey that targeted a more localized audience, centered on the project area. Those who had shown an interest in the project by testifying during the EISPN process also were invited to participate in the survey, providing the applicant with an objective set of data from them as well. The SIA team ensured that the results of the survey were conclusive enough to not need further participation.

Social Impact Assessment Survey

Overarching Social Impact Assessment Survey Questions

1. How do community members perceive Mākena Mauka?
2. How can Mākena Mauka developers best honor the concerns of community members through mitigation measures?

Survey Methods

An anonymous online survey with multiple choice and written response questions was distributed via email to key groups from January 31, 2025 to February 10, 2025. The survey included questions regarding positionality to Mākena Mauka through demographics (n=20 questions), relationships with Mākena Mauka (n=3 questions), and questions regarding perceptions and opinions of Mākena Mauka through written responses (n=5 questions). The entire survey can be found in Appendix B. No additional information about the project was provided other than what can be found in the invitational email and attached survey, because the SIA team wanted to learn from each participant their positionality, baseline perceptions and opinions about the project, and their self-reported relationships to the project area.

Sampling Strategy

Surveys were emailed to individuals who attended and/or testified about the EISPN for Mākena Mauka in writing or orally at the two scoping meetings in July 2024 (Munekiyo Hiraga, 2024); known communities who live, work, and recreate near Mākena Mauka; as well as Native Hawaiian cultural practitioners, community members, and lineal descendants of the project area. Recipients of the email were encouraged and allowed to forward the email to others who they thought may want to participate. A list of the key groups to whom invitational emails for participation in the survey were sent, knowing that there would be significant overlap (i.e., many people could represent several of these groups), are as follows:

- Native Hawaiian community members and lineal descendants of the moku of Honuaʻula – 13 emails
- Neighbors and neighborhoods from around the project area – 28 emails
- High school teachers – 2 emails
- Those who came to the EISPN scoping meetings and/or provided oral or written testimony – 261 emails
    - This group included, but was not limited to, representatives of:
        - Native Hawaiian and environmental advocacy groups,
        - K-12 and college educators,
        - Outdoor enthusiasts, and
        - Government (state and local) workers.
- Native Hawaiian and Environmental advocacy group leaders – 10 emails
- Workers in the area – 130 emails

- Agricultural and ranch workers, and food gatherers in the area – 2 emails
- Businesses and nonprofits in the area – 69 emails
- Volunteer participants in on-site, natural and cultural resource care – 84 emails

Data Collection

Potential participants (n= 599) were sent an email with an introduction to the intention of the survey and a link to Qualtrics, where the survey was administered online. The introduction email language was as follows:

> Aloha nō,
>
> Your opinions, voice and perspectives are important to make sure that the Mākena Mauka project best understands and respects the needs and concerns of the people of Maui. We invite you to participate in this information-gathering survey that will shape the Social Impact Assessment (SIA) of Mākena Mauka. We estimate that this survey will take between 5 and 15 minutes to complete.
>
> The SIA team's priorities for this survey are to: (1) provide anonymity for participants while collecting needed demographic information; (2) learn about which communities care about the project area and why; and (3) identify the diverse communities that may be impacted by Mākena Mauka and how they describe those impacts.
>
> The SIA report will honor what we learn from this survey. The report's results will be based exclusively on the feedback of those who complete this survey and any related focus groups.
>
> If you have received this email before, please forgive the overlap as we strive to be as inclusive as possible.
>
> ***Anonymity***
>
> This survey is anonymous. This means your contact information will not be connected to the survey in any way. We have set up the software (called Qualtrics) used for this survey to separate your contact information (if you choose to provide it at the end) from your survey responses, keeping your responses confidential. Therefore, no one will ever be able to link your contact information to your specific survey response. You also will have the choice NOT to provide any contact information and still complete the survey.
>
> ***Respectful learning and reporting***
>
> Our team seeks to learn from as many people as possible about perceptions of Mākena Mauka, and how the project can honor and respond to your concerns through meaningful actions.
>
> ***Next steps and how you can participate further***
>
> At the very end of the survey, you will have an opportunity to choose to learn about the preliminary results of this survey and to possibly be contacted with an

offer to participate in a small focus group/listening session. If you choose those options, your survey will be closed and submitted anonymously like everyone's, and then you will be taken to a new page to submit simple contact information. Your contact information will never be able to be linked to the survey that you submitted and will not be used for any other purposes.

Results

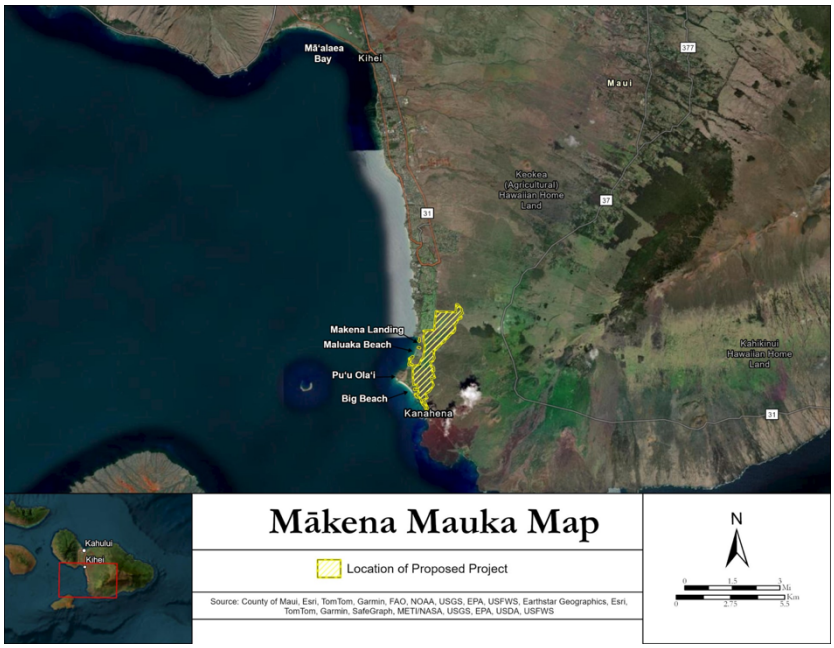
We will provide preliminary results to any survey participant who requests them. The complete survey results will be available in a public Social Impact Assessment (SIA), which will be one of the separate reports that is attached to the Mākena Mauka Draft Environmental Impact Assessment. The SIA will focus on expected impacts of the proposed development to the human, or social, environment, and what can be done to limit negative impacts and create or expand positive impacts.

Deadline

Please complete the survey by the end of Sunday, Feb. 9, 2025, if you wish to participate. The survey will close that night at midnight.

Mahalo for considering participating. Please click this link to begin:
https://tinyurl.com/MakenaMaukaSurvey

For your reference: Here is a map of the location of the proposed Mākena Mauka project area (highlighted in yellow), which would be a part of the existing Mākena Golf & Beach Club:



All participants received the first email between January 28 and February 10, 2025, and a reminder email was sent on February 7, 2025. Language for the reminder email was as follows:

> Aloha nō,
>
> If you haven't already, please consider taking a few minutes to participate in the Mākena Mauka survey that will help inform and direct the Social Impact Assessment for the project. The survey will close this Sunday, Feb. 9, 2025, at 11:59pm. (https://tinyurl.com/MakenaMaukaSurvey)
>
> We are committed to hearing from as many people and perspectives as possible and want to ensure that your voice is heard and honored.
>
> Mahalo nui to those who have already participated in this anonymous survey. We look forward to continuing to learn from and with you.
>
> Please see below for the original invitation and its additional information.

The survey was open from January 31, 2025 through February 10, 2025. Although the deadline for responses was February 9, 2025, on the morning of February 10, a request was made from a neighboring employer within a category that had not received many initial invitations: agricultural and ranch workers, and food gatherers in the area. Because the invitation email to their leadership had not been received and forwarded internally until that morning, they requested to reopen the survey for five (5) hours. The SIA team agreed to this request in hopes of reaching an important sector of the project area's community.

Respondents were invited to share their contact information if they wanted to be contacted for further engagement in the SIA; however, this was not a mandatory section in the survey. Should any given respondent select "yes" to be contacted in the future, they were directed to a new Qualtrics survey so that their survey responses were in no way connected with their contact information. This new survey included the following language:

> **Preliminary Results and Focus Group Interest Form**
>
> If you are interested in participating in a future focus group to discuss Mākena Mauka further or to be involved in reviewing the results from this survey, please select "yes" and provide your name, phone number, and/or email.
>
> If you select "yes", your name, phone number, and/or email will be kept on a separate sheet and not connected to this survey.
>
> ○ Yes, I am interested in participating in a future focus group
>
> (1) Name: _____
> (2) Phone number: _____
> (3) Email: _____
>
> ○ No, I am not interested in participating in a future focus group

Analysis

All data was cleaned prior to analysis. Cleaning data means that any of the "test" surveys that the SIA team practiced with prior to sending the survey out to the public were removed (Cleaning Data: The Basics | CBIIT, 2023.). In this cleaning process, the SIA team removed all "test" surveys they had taken prior to January 28, 2025.

The short answer questions were analyzed using a thematic content analysis approach to identify common themes across completed surveys (Vaismoradi & Snelgrove, 2019). Thematic content analysis is a qualitative research method that allows the researcher to systematically identify and interpret recurring patterns, or "themes," within any given dataset (e.g., short answer responses to this SIA survey), to understand overarching opinions, perceptions, experiences, and sentiments from those who completed the survey (Ibid.).

Both deductive and inductive coding were employed. Deductive coding allowed the SIA team to identify themes anticipated in the responses based directly on the question and on previous EIS scoping testimony and scoping meeting transcripts. Inductive coding allowed for identification of themes that emerged from the data (Saldana, 2012). Short answer responses were analyzed by a trained qualitative data analyst using Atlas.ti (Mac Version 8.1.1) to digitalize the process (Paulus, 2014). After coding was complete, the lead analyst revised definitions of all codes, collapsed redundant codes, and generated categories. For example, the codes "not enough parking at the beaches", "too much traffic" and "unsafe evacuation routes" were grouped together in a category named "vehicular-related congestion" (Saldana, 2012). Demographic survey data (e.g., questions about age, household size, length of time living on Maui) was analyzed using basic means and frequencies.

Triangulation of Preliminary Findings

After all data was analyzed, the SIA team created a draft presentation of findings to share back with respondents who had provided their contact information as willing to further engage with the SIA (Birt et al., 2016; Tracy, 2010). In qualitative research methods, this is often called "member checking", which helps ensure the trustworthiness, validity, and credibility of the findings and interpretation (Siegle, 2024). Also, in Hawai‘i, community outreach requires a level of reciprocity, ensuring that people have been heard correctly and reinforcing that this is a sincerely collaborative effort. For member checking, and out of respect to the community that participated in the survey, the draft presentation of findings was emailed on February 14, 2025 to the 55 people who had completed the first survey and had volunteered to continue to participate in the process. The email and its attached presentation invited reactions to preliminary draft findings via another online Qualtrics survey. The language in the email follows:

> Aloha nō,
>
> Mahalo for participating in the information-gathering survey to help inform the Social Impact Assessment (SIA) for Mākena Mauka, and for volunteering to continue to participate in the process.

Results

As promised, attached please find the draft preliminary results from the survey. The complete survey results will be available in the public SIA, which will be one of the reports that is attached to the Mākena Mauka Draft Environmental Impact Statement (EIS). The SIA will focus on what has been learned from the community about expected impacts of the proposed development to the human – or social – environment, and what can be done to limit negative impacts and create or expand positive impacts.

Review

Please review the draft preliminary results (reading time estimated at 10 minutes). An anonymous, short (estimated 5 minutes) feedback questionnaire will follow to understand your opinions on each of our four (4) overall draft result themes. You will also have the opportunity to comment further on each of them in the survey. That opportunity to provide feedback closes at the end of Wednesday, Feb. 19, 2025.

Anonymity

The feedback questionnaire also is anonymous. Again, your contact information will not be connected to your responses in any way, because the software (called Qualtrics) used for the questionnaire has been set up to ensure that responses are separated from this email and your email address, keeping your responses confidential. No one will be able to link your contact information to your questionnaire responses.

Deadline:

Please complete the feedback questionnaire by Wednesday, Feb. 19, 2025, at 11:59pm, if you wish to participate. The survey will close that night at midnight. Mahalo for considering continuing to participate.

Your responses will help to ensure that we have heard you correctly and that our report meets scientific standards.

The link to the questionnaire is embedded in the attached .pdf, as is a QR code that may make it easier for you to link to the questionnaire from your phone. Just in case you want to refer back to this email later, without having to re-open the attachment, here is the link to the questionnaire (https://tinyurl.com/MakenaMauka-MemberCheck), and the QR code is at the end of this email.

The SIA report will honor and report what we learn from the initial survey, your feedback responses and any related focus groups.

Me ka haʻahaʻa,

Mākena Mauka SIA Team



The document that showed the preliminary findings was attached to the email and can be found in Appendix C. The above QR code and link took participants to another anonymous survey. That survey included the following three questions for each of the four preliminary themes.

- Does this theme resonate with you? (Yes, No, I don't know, prefer not to answer)
- Do you see your opinions, perceptions, and thoughts about Mākena Mauka represented in this theme (Yes, No, I don't know, prefer not to answer)
- Please share anything else you have to add about this theme. (short answer)

One reminder email was sent on Tuesday, February 18, 2025, to nudge those who had not yet responded to the preliminary findings share back. The text of that reminder email follows:

> Aloha nō,
>
> Mahalo again for your participation in the Mākena Mauka Social Impact Assessment (SIA) Survey, and for your willingness to help ensure that decision makers are informed by a scientifically backed process.
>
> If you have not yet done so, please consider taking a few minutes to review the attached, preliminary results and to comment (anonymously) on whether or not they resonate with you and what you wrote in the survey. If you already have provided your valuable feedback, Mahalo!
>
> The opportunity to have your confidential review and comments included in our analysis **ends tomorrow night (Wednesday, Feb. 19, 2025) at 11:59pm**.
>
> Please see below for the original email text, and please see the attached for the brief report and the means to evaluate it.
>
> We look forward to hearing from you and to contacting you about the next steps reported in the attachment.
>
> Me ka haʻahaʻa,
>
> Mākena Mauka SIA Team

Qualitative Data Saturation

In qualitative research, non-numerical (i.e., words) data is gathered and analyzed to gain an in-depth understanding of an individual's experiences, attitudes, beliefs, and motivations within a specific context (e.g., living on Maui) (Austin & Sutton, 2014). To understand if any given qualitative project collected "enough" data to understand these concepts, qualitative researchers consider the "saturation" of the dataset (Saunders et al., 2018). Saturation in qualitative research is defined as the criterion for judging when to stop data collection for answering a research question (Hennink & Kaiser, 2022; Saunders et al., 2018). Saturation means that no new topics

are discussed. Another way to determine saturation is when new data are redundant of the data already collected.

Obtaining saturation is important to fully answer a research question from all perspectives of the priority population(s). In a deductive approach, saturation is the extent to which the pre-determined codes or themes are adequately represented in the data. In an inductive approach, saturation suggests the extent to which new codes or themes are identified within the data. The point of saturation varies for each study, and implementation varies widely. Researchers can and do use different strategies to determine saturation, depending in part on the specific analysis and research question(s).

During analysis of the SIA survey results, researchers employed and reached code-meaning saturation, which means that the full understanding of each code was achieved, with no counting required or involved (Hennink & Kaiser, 2022; Saunders et al., 2018). At this point no relevant new codes were anticipated, regardless of how many more surveys were completed by people living on Maui, with any kind of relationship to Mākena Mauka. Therefore, there is and will be no meaningful rationale to extending or expanding the survey.

Findings and Results of Social Impact Assessment Survey

Of the 599 email invitations that were sent, 161 individuals responded to the initial survey, and of the 55 people who volunteered to continue to participate in the process, 14 individuals responded to the preliminary results survey. Literature on online survey response rates vary, though most suggest an average 44.1% response rate is expected (Wu et al., 2022). Methods to ensure higher response rate include incentivizing (e.g., paying people to complete the survey), ensuring mobile capacity (e.g., survey can be completed on a smartphone), and sending reminders or "nudges" to complete (Brown et al., 2024; Smith et al., 2019). While the SIA team employed the last two of those methods (but not incentivizing), the response rate to the SIA survey was 26.9%. Nevertheless, because code-meaning saturation within the qualitative portion of the survey was reached by those who participated, as noted above, the number of responses still met the criteria for closing the survey.

Quantitative Results (i.e., responses from multiple choice questions)

In this section, the details of the responses to the 22 multiple choice questions in the SIA Survey and the preliminary findings feedback are displayed. Throughout this section, data is represented both in tabular form and graphic representation. The duplication is intentional, to cater to different types of readers (e.g., those who prefer numbers vs. visual representation).

The full survey can be found in Appendix B. In sum, the first 13 questions were focused on the demographics of each individual respondent who completed the survey. Examples include age, employment status, gender identity, and racial/ethnic group identification. These multiple-choice questions included a "prefer not to answer" option. The next seven questions focused on the length of time the survey respondent has lived in Hawai‘i, length of time living on Maui, and duration of any given year living on Maui. The next two questions focused on the survey respondent's relationship to Mākena Mauka, giving the opportunity to select "all that apply" on

the first question and to select the most important relationship they felt they had to Mākena Mauka on the second question. The response options for each of these questions were the same, including options such as: "I am a resident of South Maui", "I am a local business owner impacted by Mākena Mauka", and "I am a lineal descendent of the Mākena Mauka area." The survey respondents had 19 possible options to describe their relationships with Mākena Mauka.

Answers to quantitative survey questions were not required, and some respondents did not answer all questions. Additionally, some respondents did not complete the survey. Questions that had a higher "no response" rate occurred later in the survey, so those questions likely were not answered by people who did not finish the survey. The "no response" categories were not included in the counts or the percentages for each question, because those people simply did not participate in those parts of the survey. For the 13 questions that provided the option "prefer not to answer", those numbers are included in the tables but not in the respective questions' percentages. They represent a margin of error, because no one can presume why a participant – even an anonymous one – chose not to provide certain information. For transparency purposes, the SIA team chose to disclose all choices that were made in response to each question.

Age, Ethnicity, and Gender

Survey respondents varied in age, with the most common categories being between ages 35 and 44 (21.7%) and 65 or older (27.0%). No one under 18 years of age completed the survey. Respondents mostly identified as Caucasian (51.5%) and Native Hawaiian (22.0%), with a few respondents identifying as Chinese (8.0%), other (6.5%), Filipino (5.0%), Japanese (4.0%), Korean (2.0%), and Pacific Islander (1.0%). The majority of respondents identified as female (61.2%). Table 1 includes all self-reported demographic data from the SIA survey respondents.

Table 1. Self-reported demographic data of SIA survey respondents

Age	**count**	**%**
Less than 17 years of age	0	0.0%
18 – 24 years	6	3.9%
25 – 34 years	25	16.4%
35 – 44 years	33	21.7%
45 – 54 years	23	15.1%
55 – 64 years	24	15.8%
65 years or older	41	27.0%
Prefer not to answer	2	N/A
Ethnicity	**count**	**%**
Caucasian	103	51.5%
Chinese	16	8.0%
Filipino	10	5.0%
Native Hawaiian	44	22.0%

Japanese	8	4.0%
Korean	4	2.0%
Micronesian	0	0.0%
Pacific Islander	2	1.0%
Other	13	6.5%
Gender	**count**	**%**
Female	85	61.2%
Male	52	37.4%
Non-Binary	1	0.7%
Other	1	0.7%
Prefer not to answer	3	N/A
Income	**count**	**%**
$0 – $49,999	24	20.9%
$50,000 – $99,999	31	27.0%
$100,000 – $159,999	27	23.5%
$160,000 – $199,999	10	8.7%
$200,000 – or more	23	20.0%
Prefer not to answer	27	N/A
Educational Attainment	**count**	**%**
Less than high school degree	1	0.7%
High school degree or equivalent	11	7.8%
Some college but no degree	20	14.2%
Associate degree	9	6.4%
Bachelor’s degree	53	37.6%
Graduate degree	47	33.3%
Prefer not to answer	1	N/A
Employment	**count**	**%**
Disabled, unable to work	1	0.7%
Full-Time Employment	74	55.2%
Part-Time Employment	22	16.4%
Retired	35	26.1%
Unemployed, looking for work	1	0.7%
Unemployed, not looking for work	1	0.7%
Prefer not to answer	8	N/A

Figure 2 provides a visual representation of the self-reported age breakdown of the SIA survey respondents, showing that most of the respondents were aged 65 or older, with a small representation of those aged between 18 and 24 years old.

Figure 2. Self-reported age of SIA survey respondents

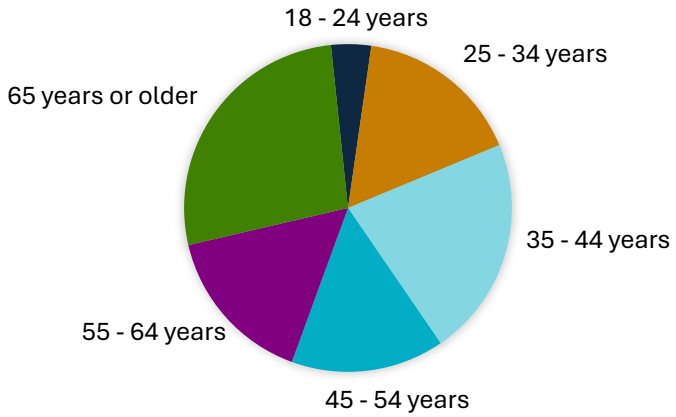
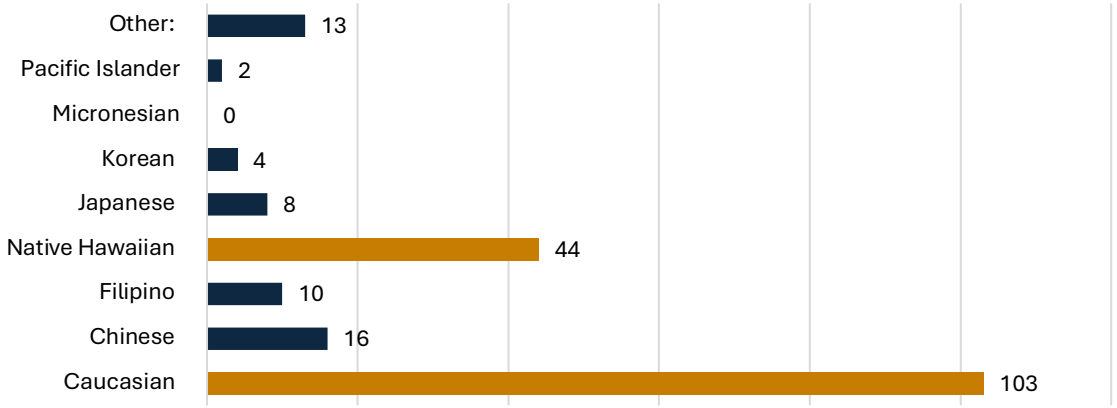


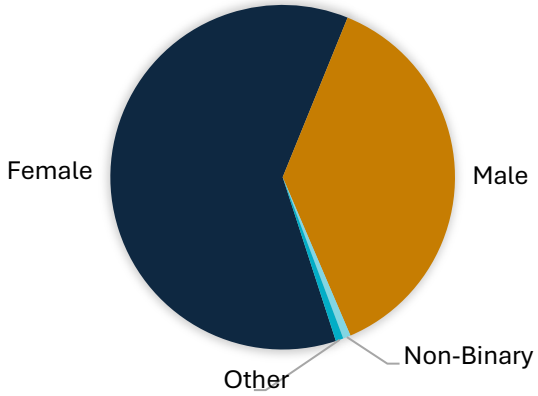
Figure 3 shows the self-reported ethnicity of SIA survey respondents. As highlighted by the gold bars below, the majority of the respondents self-identified as Caucasian (n=103; 51.5%) or Native Hawaiian (n=44; 22.0%).

Figure 3. Self-reported ethnicity of SIA survey respondents



As is common among survey participants, the predominant self-reported gender of the SIA survey respondents was female (n=85; 61.2%), as shown in Figure 4. While 52 respondents (37.4%) self-reported being male, very small percentages selected “non-binary” (0.7%) or “other” (0.7%) as their gender.

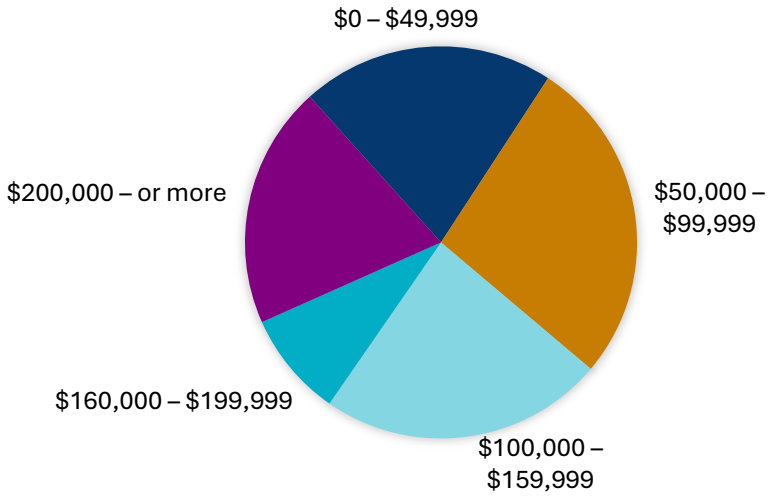
Figure 4. Self-reported gender of SIA survey respondents



Household Income, Education, and Employment

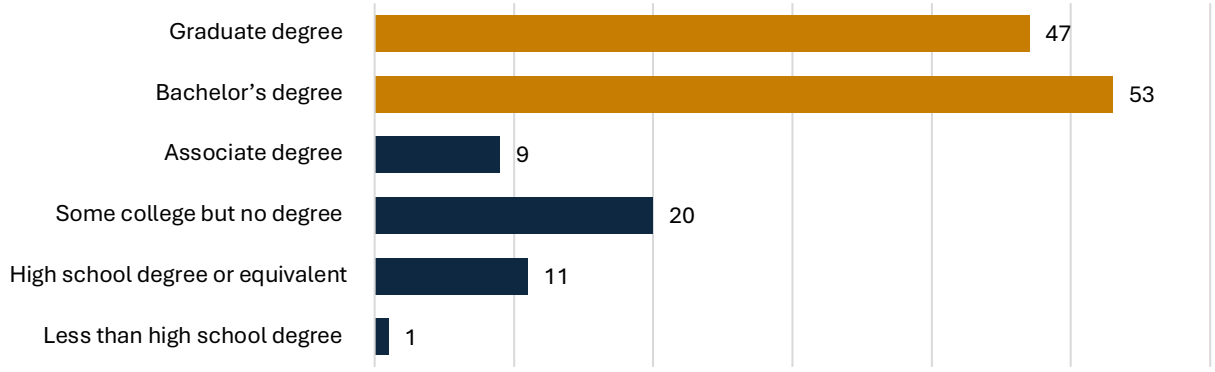
Respondents represent all levels of annual household income categories, with the most common reported income categories being $50,000-$99,000 (n=31; 27.0%) and $100,000-$159,000 (n=27; 23.5%). Figure 5 provides a visual representation of all self-reported household income data from SIA survey respondents.

Figure 5. Self-reported household income of SIA survey respondents



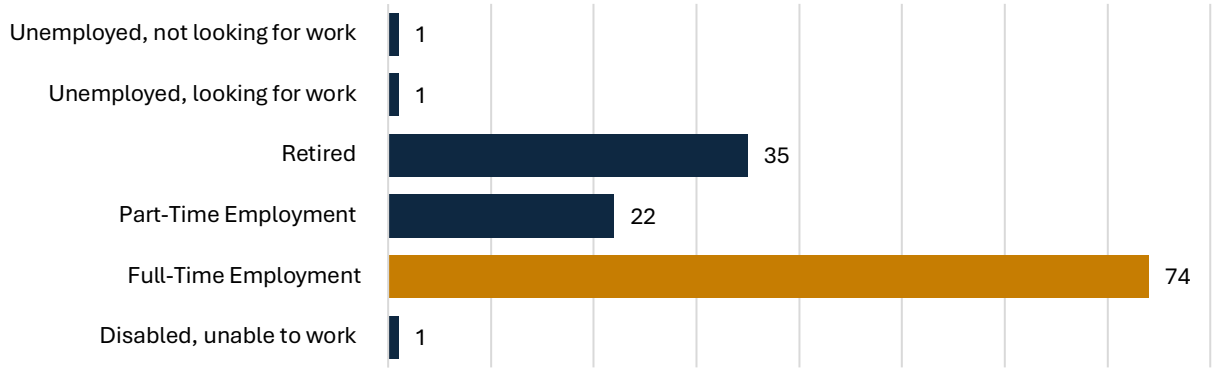
As depicted in Figure 6, respondents had high levels of educational attainment, with most reporting having a bachelor's degree (n=53; 37.6%) or graduate degree (n=47; 33.3%). Only 12 people (8.5%) self-reported no college experience.

Figure 6. Self-reported educational attainment of SIA survey respondents



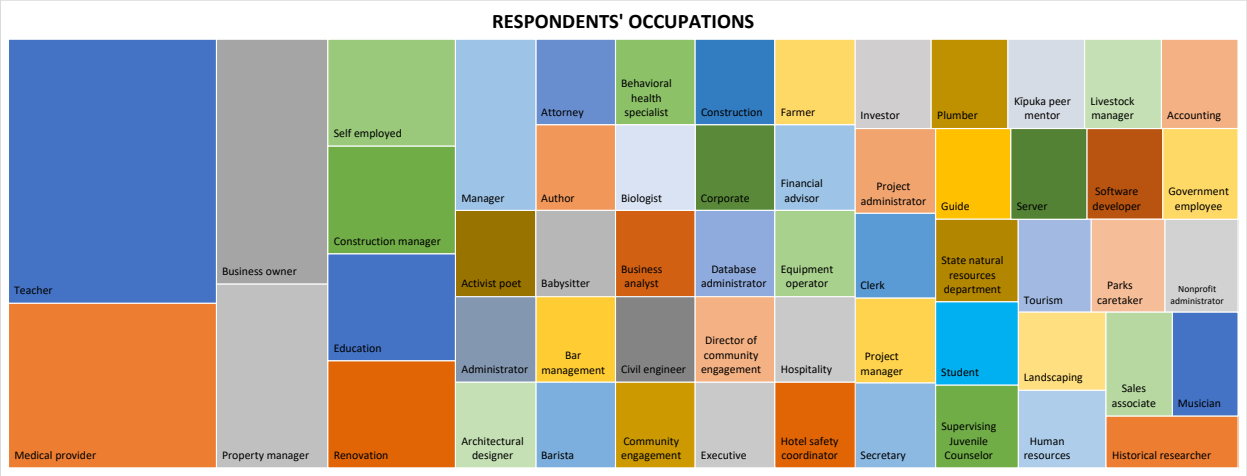
As seen in Figure 7, most respondents reported being employed, with most having full-time employment (n=74; 55.2%), some being part-time employed (n=22; 16.4%), and some reporting being retired (n=35; 26.1%).

Figure 7. Self-reported employment status of SIA survey respondents



Of those who reported being employed, respondents had a wide variety of occupations, demonstrating the variety of vantage points that contributed to the SIA survey responses. The larger block sizes in Figure 8 indicate more respondents for that occupation. For example, more respondents indicated "teacher" as their occupation than did "secretary", so the "teacher" block is larger than that of "secretary." The teacher block is the largest of the jobs reported, with eight responses and 9.8% of the total. The same data is also represented in tabular format in Table 2, where all the responses, the count of those responses, and their percentages are detailed.

Figure 8. Self-reported occupation of SIA survey respondents



Larger block size indicates more respondents with the same self-reported occupation.

Table 2. Self-reported occupation of SIA survey respondents

Occupation	count	%	Occupation	count	%
Teacher	8	9.8%	Ethnographer	1	1.2%
Medical provider	5	6.1%	Executive	1	1.2%
Business owner	4	4.9%	Farmer	1	1.2%
Property manager	3	3.7%	Financial advisor	1	1.2%
Construction manager	2	2.4%	Flight attendant	1	1.2%
Education	2	2.4%	Gig worker	1	1.2%
Manager	2	2.4%	Government employee	1	1.2%
Renovation	2	2.4%	Guide	1	1.2%
Self employed	2	2.4%	Hawaiian language specialist	1	1.2%
Accounting	1	1.2%	Historical researcher	1	1.2%
Activist poet	1	1.2%	Horticulture	1	1.2%
Administrator	1	1.2%	Hospitality	1	1.2%
Architectural designer	1	1.2%	Hotel safety coordinator	1	1.2%
Attorney	1	1.2%	Human resources	1	1.2%
Author	1	1.2%	Investor	1	1.2%
Babysitter	1	1.2%	Kīpuka peer mentor	1	1.2%
Bar management	1	1.2%	Landscaping	1	1.2%
Barista	1	1.2%	Livestock manager	1	1.2%
Behavioral health specialist	1	1.2%	Musician	1	1.2%

Biologist	1	1.2%	Nonprofit administrator	1	1.2%
Business analyst	1	1.2%	Parks caretaker	1	1.2%
Civil engineer	1	1.2%	Plumber	1	1.2%
Clerk	1	1.2%	Project administrator	1	1.2%
Community engagement	1	1.2%	Project manager	1	1.2%
Construction	1	1.2%	Sales associate	1	1.2%
Corporate	1	1.2%	Secretary	1	1.2%
Database administrator	1	1.2%	Server	1	1.2%
Delivery driver	1	1.2%	Software developer	1	1.2%
Director of community engagement	1	1.2%	State natural resources department	1	1.2%
Dog groomer	1	1.2%	Student	1	1.2%
Education coordinator	1	1.2%	Supervising Juvenile Counselor	1	1.2%
Equipment operator	1	1.2%	Tourism	1	1.2%

Location, Household Size, and Residency

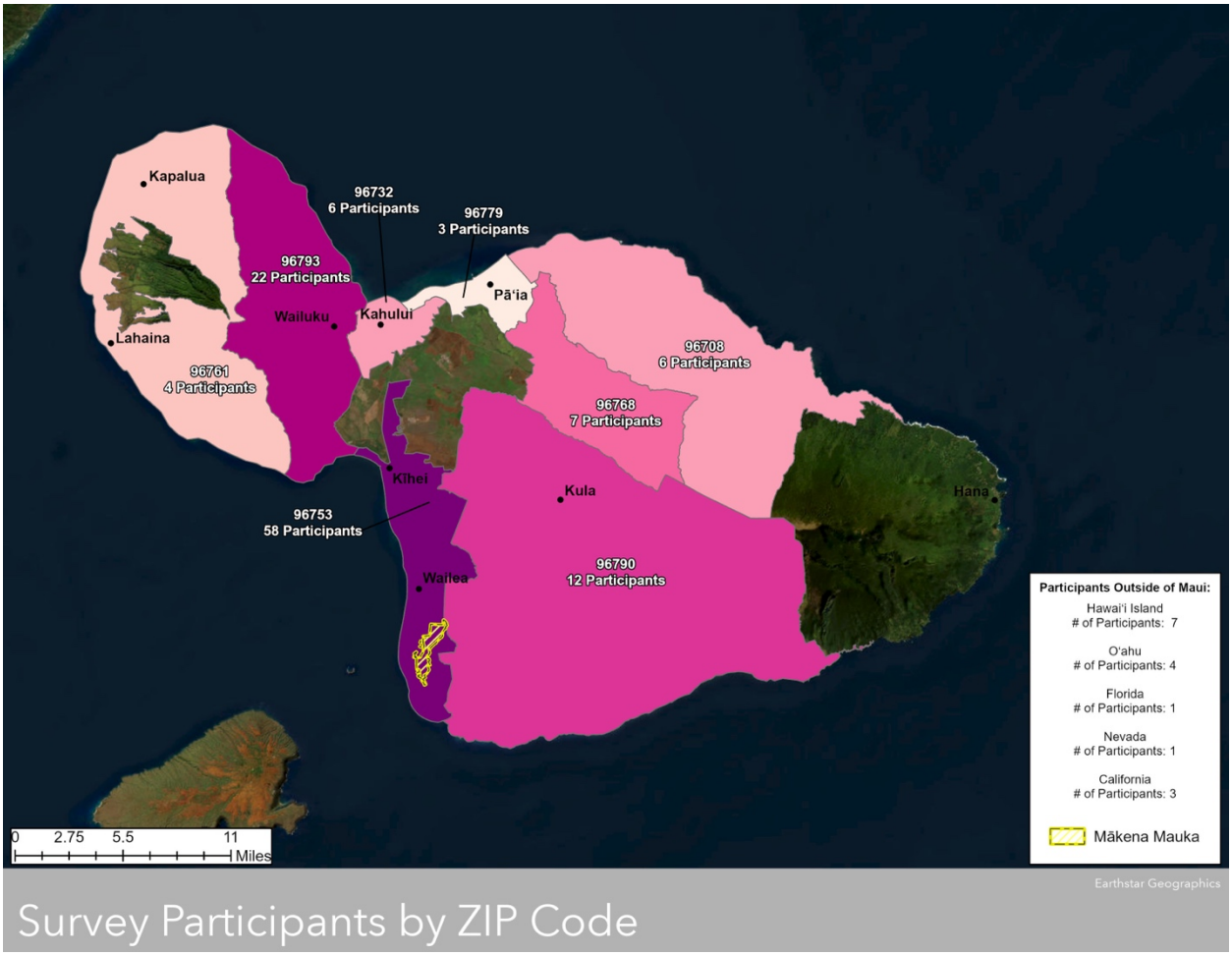
The most common zip code that respondents reported living in was 96753, Kīhei, Maui (n=58; 43.3%), which is the area that includes the proposed project area; and 96793 (n= 22; 16.4%), which includes Wailuku, the county seat. Table 3 provides details of the zip codes of residence as reported by SIA survey respondents. Figure 9 shows the density of SIA survey respondents by Maui zip code: the darker the color of the zip code area, the more responses were received from that area. This data documents that the SIA survey reached the targeted areas, closest to the project area.

Table 3. Zip codes of residence as reported by SIA survey respondents

zip code	town, state	count	%
96753	Kīhei, Maui	58	43.3%
96793	Wailuku, Maui	22	16.4%
96790	Kula, Maui	12	9.0%
96768	Makawao, Maui	7	5.2%
96708	Haiku, Maui	6	4.5%
96732	Kahului, Maui	6	4.5%
96761	Lahaina, Maui	4	3.0%
96779	Paia, Maui	3	2.2%
96720	Hilo, Hawai‘i Island	3	2.2%
96737	Ocean View, Hawai‘i Island	2	1.5%

96816	Maunalani Heights, Oʻahu	2	1.5%
96813	Punchbowl Area, Oʻahu	1	0.7%
96817	Liliha-Kapalama, Oʻahu	1	0.7%
96740	Kailua-Kona, Hawai'i Island	1	0.7%
96754	Kilauea, Hawai'i Island	1	0.7%
33322	Fort Lauderdale, FL	1	0.7%
89109	Las Vegas, Nevada	1	0.7%
90292	Marina Del Ray, California	1	0.7%
90405	Santa Monica, California	1	0.7%
94010	Burlingame, California	1	0.7%
Total		134	100%

Figure 9. Map of Maui and list of other locations of ZIP codes of residence as reported by SIA survey respondents



On average, the household size of respondents was 2.73 people, with a range of one to eight people in the household, including 0.58 children (range of 0-6) and 0.62 elders (range of 0-2). Table 4 provides details on the self-reported household size, including number of children under the age of 18 years and elders over the age of 65 years.

Table 4. Self-reported household size including number of children (less than 18 years old) and elders (more than 65 years old) of SIA survey respondents

	Household size	Number of children	Number of elders
Mean (average)	2.73	0.58	0.62
Min	1	0	0
Max	8	6	2

Of those who answered the questions, respondents have lived in Hawai‘i for decades, with most respondents reporting more than 21 years of Hawai‘i residency (56.0%) and more than 21 years of living on Maui specifically (50.8%). Of those living on Maui, almost all (95.9%) are living there for most of the year (i.e., between 7 and 12 months a year). Table 5 provides details of the self-reported duration of time living in Hawai‘i. Figures 10 and 11 provide a visual representation of the self-reported duration of residency of SIA survey respondents.

Table 5. Self-reported duration of time living in Hawai‘i and on Maui of SIA survey respondents

Years living in Hawai‘i	**count**	**%**
Less than 1 year	0	0.0%
1-5 years	14	10.4%
6-10 years	15	11.2%
11-15 years	12	9.0%
16-20 years	10	7.5%
More than 21 years	75	56.0%
I don’t live in Hawai’i	4	3.0%
I used to live in Hawai'i but don't currently live here	4	3.0%
Years living on Maui	**count**	**%**
Less than 1 year	0	0.0%
1-5 years	17	13.3%
6-10 years	15	11.7%
11-15 years	13	10.2%
16-20 years	9	7.0%
More than 21 years	65	50.8%

I don’t live on Maui	6	4.7%
I used to live on Maui but don't currently live here	3	2.3%
Months during each year living on Maui	**count**	**%**
1 month or less	3	2.5%
2-6 months	2	1.6%
7-12 months	117	95.9%

Figure 10. Self-reported years living in Hawai‘i of SIA survey respondents

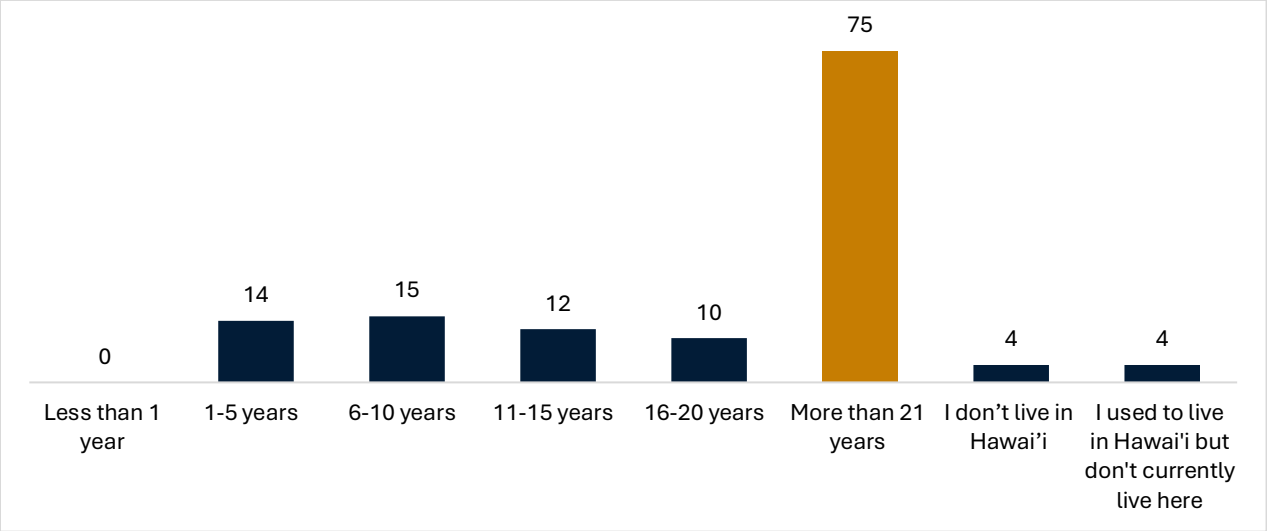
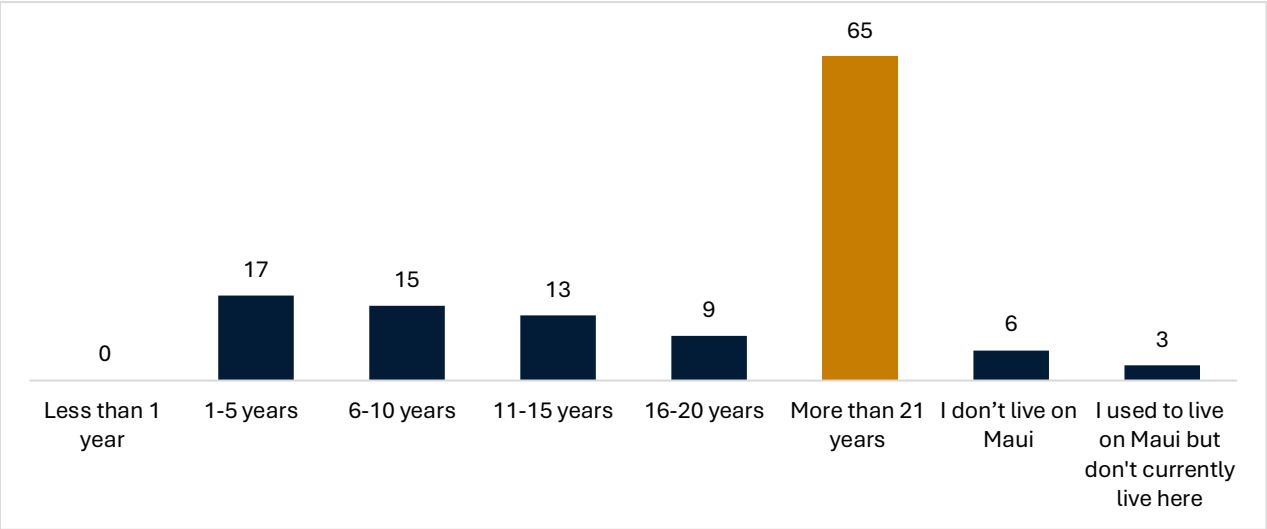


Figure 11. Self-reported years living on Maui of SIA survey respondents



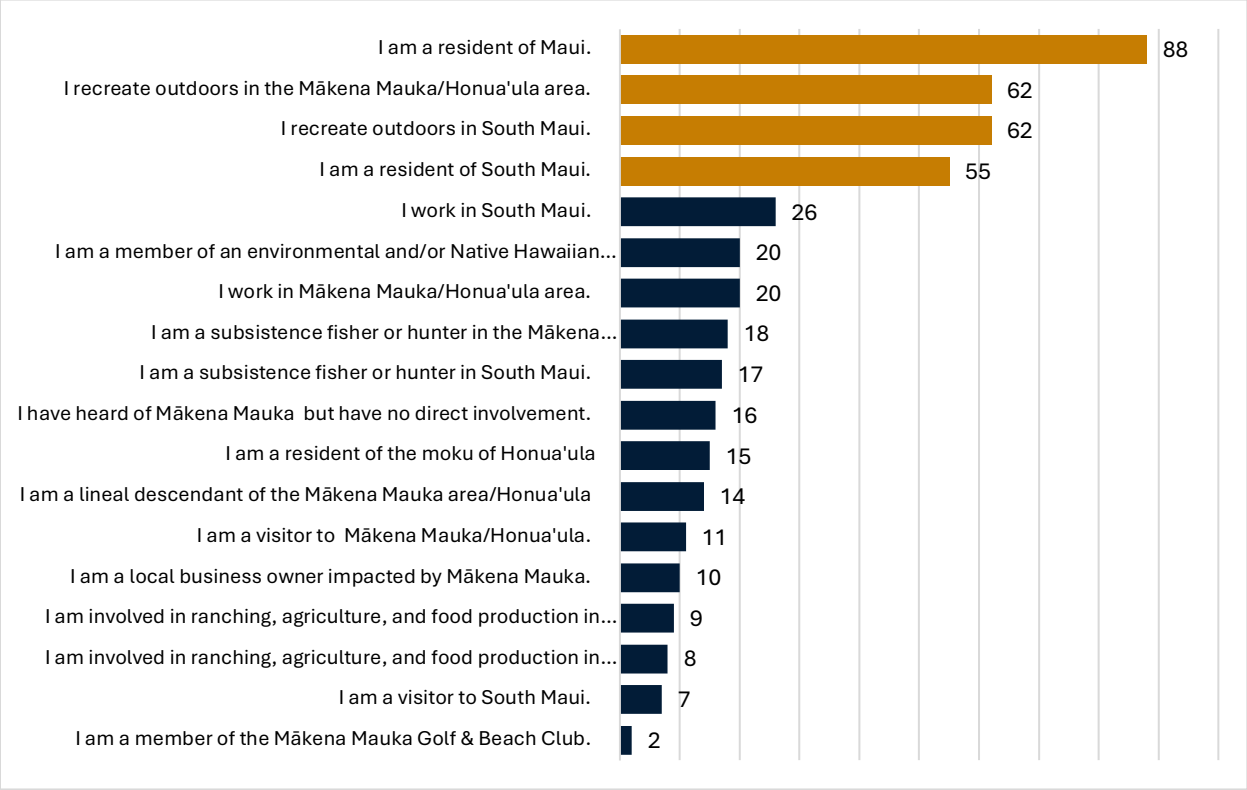
Relationship to Mākena Mauka

Respondents have a variety of relationships to Mākena Mauka, including identifying their relationships to the area broadly as being residents of Maui (68.2%) and residents of South Maui (42.6%). They also identified more narrowly as people who recreate outdoors in the Mākena Mauka area/Honua‘ula (48.1%), and as being lineal descendants of the Mākena Mauka area/Honua‘ula (10.9%). Table 6 provides details on the various self-reported relationships to Mākena Mauka, as identified by survey respondents to the question that allowed them to select all answers that applied. Figure 12 provides a visual representation of the same data in a bar graph, with gold bars highlighting the most common answers, including living on Maui, living and recreating outdoors in South Maui, and recreating outdoors in Mākena Mauka/Honua‘ula.

Table 6. Self-reported relationship to Mākena Mauka of SIA survey respondents (could choose all that apply)

	count	%
I am a member of the Mākena Mauka Golf & Beach Club.	2	1.6%
I am a visitor to South Maui.	7	5.4%
I am involved in ranching, agriculture, and food production in South Maui.	8	6.2%
I am involved in ranching, agriculture, and food production in the Mākena Mauka/Honua'ula	9	7.0%
I am a local business owner impacted by Mākena Mauka.	10	7.8%
I am a visitor to Mākena Mauka/Honua'ula.	11	8.5%
I am a lineal descendant of the Mākena Mauka area/Honua'ula	14	10.9%
I am a resident of the moku of Honua'ula	15	11.6%
I have heard of Mākena Mauka but have no direct involvement.	16	12.4%
I am a subsistence fisher or hunter in South Maui.	17	13.2%
I am a subsistence fisher or hunter in the Mākena Mauka/Honua'ula area.	18	14.0%
I work in Mākena Mauka/Honua'ula area.	20	15.5%
I am a member of an environmental and/or Native Hawaiian advocacy group.	20	15.5%
I work in South Maui.	26	20.2%
I am a resident of South Maui.	55	42.6%
I recreate outdoors in South Maui.	62	48.1%
I recreate outdoors in the Mākena Mauka/Honua'ula area.	62	48.1%
I am a resident of Maui.	88	68.2%

Figure 12. Self-reported relationship to Mākena Mauka of SIA survey respondents (could choose all that apply)



Once the SIA survey respondents had to choose which of the possible answers that applied to their relationships to Mākena Mauka was the most important to them, the answers began to depict the closeness of that relationship. For example, Table 7 shows via numbers that three of the highest-ranking answers remained being residents of Maui, in general, and of South Maui in particular.

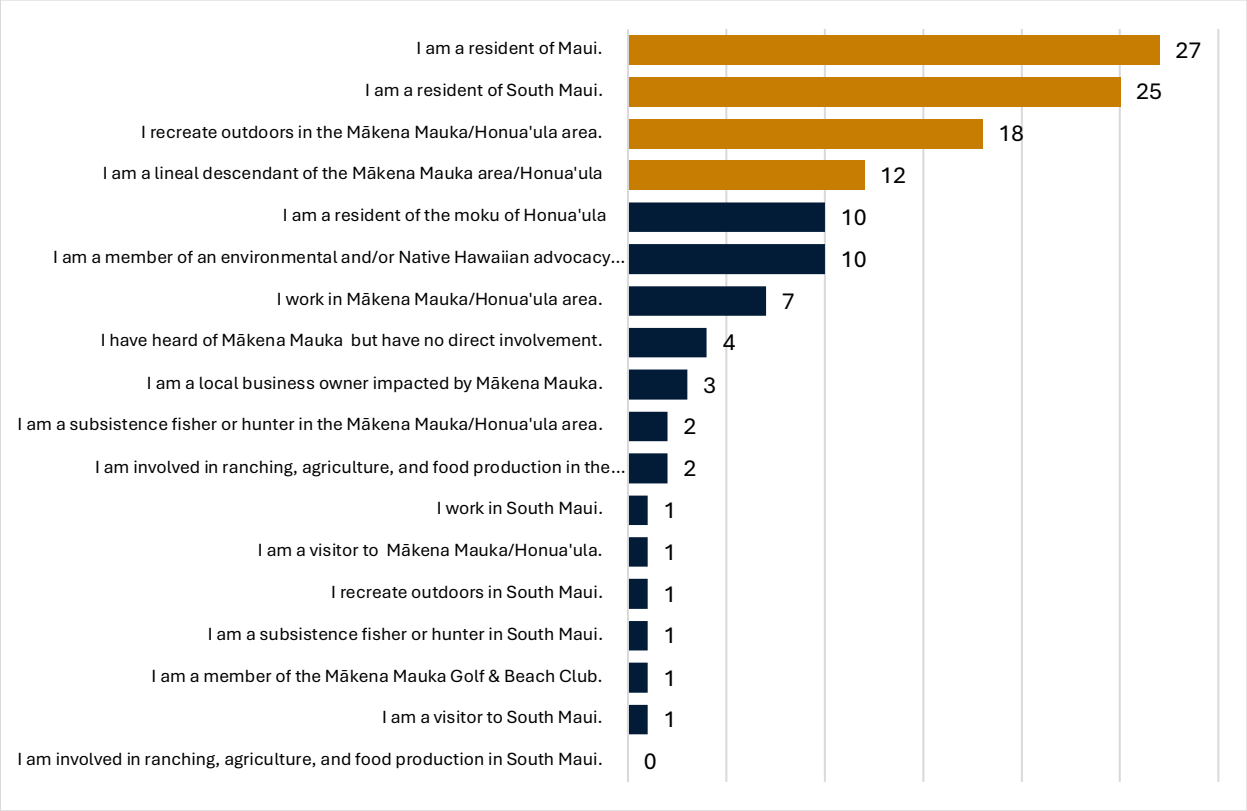
However, an additional relationship rose in priority among the respondents. Twelve of the 14 respondents who self-reported as lineal descendants of Mākena Mauka area/Honua‘ula selected that relationship with the place as the most important relationship to them. As shown in the bar graph of Figure 13, that relationship rose from being 13th in the rankings of most common relationship with Mākena Mauka to being 4th in the rankings of the most important relationship for respondents with Mākena Mauka. This documents a relevant and actual connection to place among a particular group of respondents.

Table 7. Self-reported relationship of SIA survey respondents to Mākena Mauka (forced to choose the 1 relationship that was most important to respondent)

Relationship to Mākena Mauka	count	%
I am a resident of Maui.	27	21.4%
I am a resident of South Maui.	25	19.8%
I recreate outdoors in the Mākena Mauka/Honua'ula area.	18	14.3%
I am a lineal descendant of the Mākena Mauka area/Honua'ula	12	9.5%
I am a member of an environmental and/or Native Hawaiian advocacy group.	10	7.9%
I am a resident of the moku of Honua'ula	10	7.9%
I work in Mākena Mauka/Honua'ula area.	7	5.6%
I have heard of Mākena Mauka but have no direct involvement.	4	3.2%
I am a local business owner impacted by Mākena Mauka.	3	2.4%
I am involved in ranching, agriculture, and food production in the Mākena Mauka/Honua'ula	2	1.6%
I am a subsistence fisher or hunter in the Mākena Mauka/Honua'ula area.	2	1.6%
I am a visitor to South Maui.	1	0.8%
I am a member of the Mākena Mauka Golf & Beach Club.	1	0.8%
I am a subsistence fisher or hunter in South Maui.	1	0.8%
I recreate outdoors in South Maui.	1	0.8%
I am a visitor to Mākena Mauka/Honua'ula.	1	0.8%
I work in South Maui.	1	0.8%
I am involved in ranching, agriculture, and food production in South Maui.	0	0.0%

Figure 13 also visually represents the priorities of SIA survey respondents that fit within the categories from which the SIA team sought representation, as noted previously in the categories of people to whom invitation emails were sent for participation in the survey. In most cases, the numbers are beyond those in each group that the team was able to email. This means that either the survey reached additional people through email forwarding or that those who were listed in one category may have self-selected the priority of another category. For example, while only two emails were intentionally sent to people known to be involved in ranching, agriculture, or food production, eight noted that affiliation when they could choose all relationships with Mākena Mauka (See Table 6 and Figure 12), but only two stated that was their most important of all of their relationships to the place (See Table 7 and Figure 13). This data will be applied and analyzed later in this report to determine which groups of people should be represented in follow-up focus groups.

Figure 13. Self-reported relationship to Mākena Mauka of SIA survey respondents (forced to choose the 1 relationship that was most important to respondent)



Missing Data

As noted earlier, some tables include survey responses that chose "prefer not to answer", and none include the number of participants that did not respond at all to a particular question. Some multiple-choice questions required a forced response and had an option to choose "Prefer not to answer." Others simply allowed for no answer to be chosen before the participant moved on to the next question. Those non-answers were recorded as "No answer." Percentages for each question exclude surveys without responses. Each row on Table 8 below represents each question in the survey, and the "Missing Data" count in the right-hand column sums the total of non-answers and "prefer not to answer" selections. All of the multiple-choice questions (quantitative data questions) had to be completed to enter the short-answer section, however, which is why Table 9 shows that a consistent 67 people did not complete the last five questions, which were the short-answer questions, because they did not qualify to enter that section.

As is typical within survey completion rates, as any given respondent answered the questions, that person was more likely to stop answering questions further into the survey. This is likely due to "survey fatigue", or the respondent ran out of time and forgot to log back in and complete the survey at another time. The incomplete answers listed in Table 8 do not impact the value of the results or the finding of saturation based on the short-answer results. They do help lead to targeted Focus Groups in the next round of research, as explained in the following "Next Phase of Community Outreach and Engagement" chapter.

Table 8. Missing data from survey questions

Variable Name (e.g., question)	Count of "Missing Data"
ethnicity_multiple	7
age	7
marital_status	19
income	19
gender	19
ethnicity_single	19
employment	19
education	19
zip	27
years_hawaii	27
number_elders	27
number_children	27
household_size	27
mm_relationship_mult	32
years_maui	33
mm_relationship_one	35
months_maui	39
mm_impact	67
mm_development	67
mm_connect	67
mm_community	67
mm_assessment	67

Qualitative Findings (i.e., responses from short-answer questions)

Four key themes emerged from the short answer responses to the following three questions:

- How will Mākena Mauka directly impact your community?
- How would you have Mākena Mauka benefit you and your community?
- What one thing do you personally want the decision makers for the draft Environmental Impact Statement and the drafters of the Social Impact Assessment to know?

Below, each of the four key themes are described by the theme name, the categories of codes that support that theme, and exemplifying quotations pulled directly from the short answer responses for each theme. Of note, as is customary with authentic representation of qualitative data, all

short answer responses are provided verbatim (i.e., including errors in spelling or grammar), and clarifying text is provided in [brackets] within a quotation as needed (Eldh et al., 2020).
The themes described below incorporate the following findings: First, respondents strongly feel that Mākena Mauka is not good for the local people, land, or resources of Maui. Second, respondents are very concerned about limited resources on Maui and think Mākena Mauka will only worsen these scarcities. Third, respondents stated that the needs of local people and the land of Maui should be prioritized when it comes to development decisions on Maui. Fourth, respondents noted that there are some opportunities to mitigate the negative impacts of Mākena Mauka, but these mitigations do not outweigh the negative aspects, and they generally did not trust that the mitigations will be honored.

Theme 1: *"Mākena Mauka is not good for the local people, land, or resources of Maui."*

The first theme – "Mākena Mauka is not good for the local people, land, or resources of Maui" – is supported by the following categories:

- Lack of affordable housing
- Displacement of local people
- Overcrowding on beaches and roads
- Too many luxury homes only occupied a short time each year
- Oversaturation of wealthy non-Maui residents

This theme is exemplified by quotations such as:

> *"It [Mākena Mauka] will take water away from important resources. It will take away water from other communities. There is no ACTUAL affordable housing as part of the development. It will impact access to Oneloa. It will cause massive pollution to the area and surrounding waters. It will attract wealthy residents that don't care about the history of the area or the community. They will be many part time residents that don't have an interest in the environment or the history of Hawaii and its people. It will attract people from off island and will further drive out any actual natives that might be left."*

> *"We need to stop prioritizing luxury development for tourists and wealthy transplants and part-time residents. Especially with our limited land, water, and other resources on Maui, we need to focus on creating more and cheaper housing for our locals, especially the kanaka maoli and kama'aina."*

> *"It will change the landscape of our beautiful island, turning the quiet tranquil town of Mākena, into a gentrified tourist trap like nearby Wailea. It will also provide more part time residents with luxury homes, meanwhile, families that are*

born and raised on Maui are being forced to move away due to not having an affordable home to live in."

Theme 2: *"Concerns about limited resources in Maui, and Mākena Mauka will make the problems worse."*

The second theme – "Concerns about limited resources in Maui, and Mākena Mauka will make the problems worse" – is supported by the following categories:

- Limited fresh water
    - Residents already living with water restriction regulations
- Limited affordable housing
- Too much traffic
- Unsafe evacuation routes exacerbated by more people
- Limited access to cultural land and spaces, beaches, oceanfront when more luxury developments are built

This theme is exemplified by quotations such as:

"First -we don't have the drinking water, infrastructure, roads, medical care, police/fire support or ocean access/space on this island for this housing project. It would be filled with non full-time residents who would not malama the land, they over run the beaches, destroy the reef and are disrespectful of the wildlife, steal all the water for landscaping and pools. It would completely change the quality of life for our Maui residents. We would have all the problems of Oahu with no benefits. This is horrible plan."

"We don't need it. We don't want it. We already have more than enough homes that sit empty the majority of the year. What we need are affordable homes for the working class. As a business owner, I have a hard time hiring employees because of the terrible housing crisis we have on Maui. We don't need more expensive homes and wealthy people coming here for part of the year using our resources."

"Mākena Mauka and all of South Maui are already overdeveloped. We are experiencing a serious drought with current water restrictions and cannot afford to allow another huge development to place further strain on the limited water resources. South Maui is also heavily impacted by Kona storms and further development could exacerbate that and cause additional flooding. The annual storms have also been washing out large portions of South Kihei Rd leaving only Piilani Hwy operational. This causes a safety hazard as traffic is backed up on both roads and doesn't allow for safe evacuation outlets. Adding another development would only cause further traffic and safety concerns."

Theme 3: *"The needs of local people and land of Maui should be prioritized and centered first and foremost when it comes to development decisions on Maui."*

The third theme – "The needs of local people and land of Maui should be prioritized and centered first and foremost when it comes to development decisions on Maui" – is supported by the following categories:

- Preserve access to open space, beaches, oceanfront for access by local people
- Affordable housing with priority for local people
- Too many luxury homes that are only inhabited a short time each year
- Resources for building should go to prioritize local communities
    - Lahaina should be rebuilt before additional luxury developments
- The land, flora, fauna, natural resources, and cultural history of Maui need to be protected and prioritized

This theme is exemplified by quotations such as:

> *"Makena is a special and historical area - respect the locals and their needs. Build in a manner than protects & enhances the Āina; not in a manner that protects the developers and those who buy in. Educate people about the culture and needs of those who already reside here. Educate that it's not an entitlement, rather a responsibility to live here."*

> *"They [developers] need to respect and honor the native Hawaiians and the long time residents who have lived in Maui for several generations. Mākena Maui has a moral obligation to preserve the Hawaiian culture and natural resources of Maui. The only way to accomplish these expectations is to prevent development and make it a national park."*

> *"They [developers] need to offer the lineal descendants of Mākena first dibs at the 'affordable housing.'"*

Theme 4: *"There are some opportunities to mitigate the negative impacts of Mākena Mauka, but these mitigations do not outweigh the negative aspects and it is not trusted that the mitigations will be honored."*

The fourth theme – "There are some opportunities to mitigate the negative impacts of Mākena Mauka, but these mitigations do not outweigh the negative aspects and it is not trusted that the mitigations will be honored" – is supported by the following categories:

- Build affordable housing
- Provide resources to rebuild Lahaina, and give back to local community
- Build new, safe roads and evacuation routes

- Preserve Mākena Mauka's native flora and fauna
- Ensure Mākena Mauka remains accessible by locals
- Establish regulations on water use by luxury developments and homeowners
- Listen to local people and prioritize their needs to continue living and thriving on Maui

This theme is exemplified by quotations such as:

> *"Keep as much of the open space and natural views as possible. (…) Provide hiking and camping areas that have been requested long ago for this area. This is what the people of South Maui have always asked for in this area. (…) Don't create more landscape features in rich people's backyard. Respect the native species found in this area though action not just in writing."*

> *"Should the road be expanded to accommodate this new population, I would like to see Makena Mauka focus on genuine housing for locals. Given the devastation of the Lahaina fires, there are numerous families displaced. Thus it does not make sense for the community to encourage such a large influx of newcomers when people who directly contribute to our rich community are forced out."*

> *"[Developers should offer] Perpetual funding for affordable housing for descendants and local workforce (have lived on Maui 10+ years). Perpetual funding for the local community to have meaningful experiences with the Makena environment – where they feel safe, comfortable, and actually able to enjoy Makena without feeling closed in by luxury development, commercial operators, or tourists. Perpetual funding to host community events where Maui-based organizations can have dinner fundraisers and golf tournaments throughout the year - not just in low season for the Makena members."*

Sub-Analyses

Additionally, the SIA team conducted several sub-analyses to ensure the dataset was explored from multiple angles. This included a sub-analysis of only short answer responses from those who self-identified as either Native Hawaiian or a lineal descendent of the Mākena Mauka area/Honua'ula moku, which was 44 of the short answer survey responses. After analyzing only these short answer responses, the SIA team is confident that the general analysis and findings (as delineated above) also fully represents the sentiments, opinions, and perceptions of those who identified as Native Hawaiian or lineal descendants.

Further sub-analysis was conducted on two additional short answer questions. These two questions elicited responses that were illogical to analyze with the responses to the first three short answer questions, because the codes generated from these two questions would not have applied to any of the responses from the first three questions. For example, codes specific to the

question about "what other groups of people should be included for further feedback" would only apply to responses to that specific short answer question, and not to responses to the first three short answer questions. Therefore, one of these sub-analyses was conducted with regard to this short answer question:

- What other groups of people should we connect with to seek further feedback about the proposed Mākena Mauka project?

The SIA team included this question because they wanted to ensure that all relevant perspectives and stakeholders were queried and had the opportunity to participate in the SIA survey. Responses to this question included some specific names of individuals, many of whom are Native Hawaiian and/or lineal descendants. Additionally, some short answer responses suggested that "Native Hawaiian and/or lineal descendants" be included, without naming any one person or family specifically. In response to this feedback, the SIA team conducted the previously mentioned sub-analysis, including responses from only those who self-identified as Native Hawaiian and/or lineal descendants.

Other groups that were recommended to query included recreational and environmental groups, high school and college students, and local community associations and Hawaiian Civic Clubs. Some of the direct responses include:

> *"Make a better and continued effort to engage people who live here and who feel it is their kuleana to protect their history and culture."*

> *"Need to especially connect with Native Hawaiians and local workforce."*

> *"Groups that represent and support the needs of our island's natural beauty and surroundings. Agencies that understand the ingress egress requirements for safety and daily functioning. Especially the agency that is overseeing the current use and the future demand for all water in this area."*

Many of the groups and individuals that were recommended to be queried had been included in the initial email distribution for the SIA survey and were shown to be included by the responses given to the survey. For example, at least 13 emails to known Native Hawaiian and lineal descendants were sent with the first email invitation to complete the survey, and 44 Native Hawaiians and 14 lineal descendants responded. Furthermore, the SIA team plans to use all of the above recommendations to guide future SIA focus group recruitment and invitations, as described in the "Focus Groups" section below, and to inform our mitigation proposals, also described below and which will be further examined and prioritized by the SIA focus groups. The SIA team also conducted a sub-analysis of the responses to the following question:

- Please tell us about another development on Maui that is working really well for you/your community.

The purpose of this question was to provide the SIA team with concrete, existing examples of developments that, at least in part, have some feature that benefits the local community of Maui. Though many short answer responses to this question included "I can't name any" or "there are none," the next most common response to this question included terms such as "affordable housing" and "working class housing," and many specific developments were named. Most of the specific responses are characterized as local developments that offer a wide range of housing options. These developments were intended for the local community and are largely occupied by the owners (e.g., not rental properties, not part-time residents). Developments that include some kind of public aspect (e.g., retail offerings, public parks) were also mentioned. Some direct quotations from the short answer responses to this question include:

> *"Not sure of any recent developments that have really benefitted locals."*

> *"Only well-planned areas that sell to only working residents."*

> *"I appreciate affordable housing developments that are built in appropriate areas of the community plan that was created by the people of south Maui (that won't directly impact or damage fragile cultural areas or ecosystems) that also don't become unnecessary eye sores for all to see."*

Responses to Draft Findings

As delineated in the "Triangulation of Preliminary Findings" section above, all respondents who provided their email address after completing the initial SIA survey were sent a draft of the preliminary findings. Of the 55 individuals to whom these preliminary findings were sent, 14 individuals responded to the preliminary draft findings. Among those, there was 93%-100% agreement with the preliminary themes, as stated by selecting "yes" to questions: "Does this theme resonate with you?" and "Do you see your opinions, perceptions, and thoughts about Mākena Mauka represented in this theme?" Short answer responses to those questions as applied to each of the four themes underscored the same sentiments shared in the SIA survey, with strong opposition to the development of Mākena Mauka:

> *"The results of your survey clearly & overwhelmingly show that your company's intentions to build more gated communities that cater to the wealthy global elite is not wanted or needed here on Maui. It provides absolutely No benefits to our community aside from increasing housing costs & further pushing the investment real estate market higher & higher which intentionally drives Kanaka & generational locals out of their homeland. We definitely don't need to be wasting even more land on another golf course for the rich either. So the question is will your company actually hear & accept our feedback by scrapping this project who's only intent is to make money while driving more Kanaka out as the rich get richer & the middle class go broke? Or will you continue the modern day colonizing ways that other developers have continued generations now in turning*

> *a natural paradise into a ridiculous fake concrete jungle? Will your company heed the voices in our community & pull back or will you continue to steamroll our natural habitat so you can build more fake waterfalls & infinity pools that sit empty the majority of the day?"*

Respondents indicated they were appreciative of being able to see the draft findings, but were unsure of whether these efforts will impact the project:

> *"I appreciate the transparency in showing answers not favorable to MM. I just hope this impacts the trajectory of the project."*

They shared doubts that any mitigations would work for the local people and doubts that mitigations would be taken seriously by the developer:

> *"How do you mitigate water loss and traffic?"*

> *"Due to the lack of trust of developers; mitigations measures will not be applied if it is costly to the developer. Accountability to the local people is not obvious or shown once the community is built."*

Feedback from those who responded to the preliminary findings strongly indicates agreement with the findings and strengthens the validity of the interpretation of the SIA survey as analyzed by the SIA team (Tracy, 2010).

Next Phase of Community Outreach and Engagement

Part of the SIA team's role in the environmental review process for Mākena Mauka is to inform the applicant about social impacts that are presumed, perceived and provided by the general and specific communities that are most likely to be impacted by the development. As noted earlier, that process included reviewing existing recorded data from the EISPN scoping meetings and creating a means to target objective and open-ended questions to a specific set of community members to help determine current community perspectives through the SIA online survey. Historic and current impacts to and changes within the nearby communities and their historic and current demographics provide a context in which the proposal is occurring. This information helps to build a better estimate of the adaptability and needs of the people of the area. It also feeds the content and purpose of deeper conversations that elicit constructive commentary on existing challenges for and impacts to the local communities, along with possible improvements to and mitigations of the proposed development that could help meet existing challenges as well as additional challenges foreseen from the development during and after the development process.

Historic and Existing Conditions

Voyaging Polynesians who settled Hawai‘i approximately 1,000 years ago eventually evolved with this archipelago, developing practices in response to and in care of the distinct island environments and their surrounding seas and skies. Their reciprocal relationships with the place were born of genealogical connections and the respect that one has for one's ancestors and family members. Those familial relationships continue today. Foreign occupation and an illegal overthrow of the constitutional monarchy in Hawai‘i devastated many aspects of Native Hawaiians' traditional lives, including their health, social stature, resource tenure and autonomy (MacKenzie, 2015).

Continued connections to place contributed to the persistence of cultural knowledge and practices, despite historical disruptions. Today, ongoing efforts in cultural revitalization are contributing to the restoration of ecological systems and community well-being that had been impacted by generations of environmental degradation and policy-driven disconnection. A generation of children who were raised in Hawaiian language immersion schools are now adults, raising their own children and publicly speaking a language that once was outlawed by the usurper government. Cultural practices that had to be hidden for generations have been re-blossoming and revitalizing the Hawaiian Islands, of which Native Hawaiian culture is an integral part (McGregor, 2007, p. 4). Community health requires environmental health, and natural resources are cultural resources.

‘Ohana (family) is a defining element of Hawaiian culture, and it requires constant tending (Paglinawan et al., 2020, p. 16). Native Hawaiian familial connections span ancestral ties and future generations, and they include a heritage that connects them to the geological and

evolutionary history of Hawai‘i, as well as to the native, natural resources that continue to populate the islands (McGregor, 2007, p. 13). For example, the Kumulipo, a genealogy chant from King Kalākaua’s and Queen Lili‘uokalani’s family, traces all life origins – including human – back to the coral polyp and follows a parallel evolution of living things on land and sea, showing the interconnectedness of life and ecosystems (The Kumulipo: An Hawaiian Creation Myth, 1997). Another tradition sings of the story of the goddess Pele and her family as they travel the Pacific in various forms. Pele, in one of her geologic forms, volcanically births the islands down the archipelagic chain, and continues to grow the pae ‘āina (archipelago) today. Another birthing story speaks of the first child of Wākea and Ho‘ohokukalani as being Hāloa Naka, who is stillborn, and who when buried grows into the first kalo plant. Their second child, Hāloa, begins the line of Native Hawaiian people.

Such traditions raise the level of connection between one’s place, which feeds and shelters one’s people, and the people, who in turn must care for that place and its resources as siblings and ancestors that must be honored and treated with respect. This level of reciprocal care weaves throughout cultural practices, interpersonal relationships and the Hawaiian language today. Equally, regenerative subsistence practices help to unify the ‘ohana of the insular and extended family, which can include people who are not related by blood or origin, but who live shared values.

Island of Maui

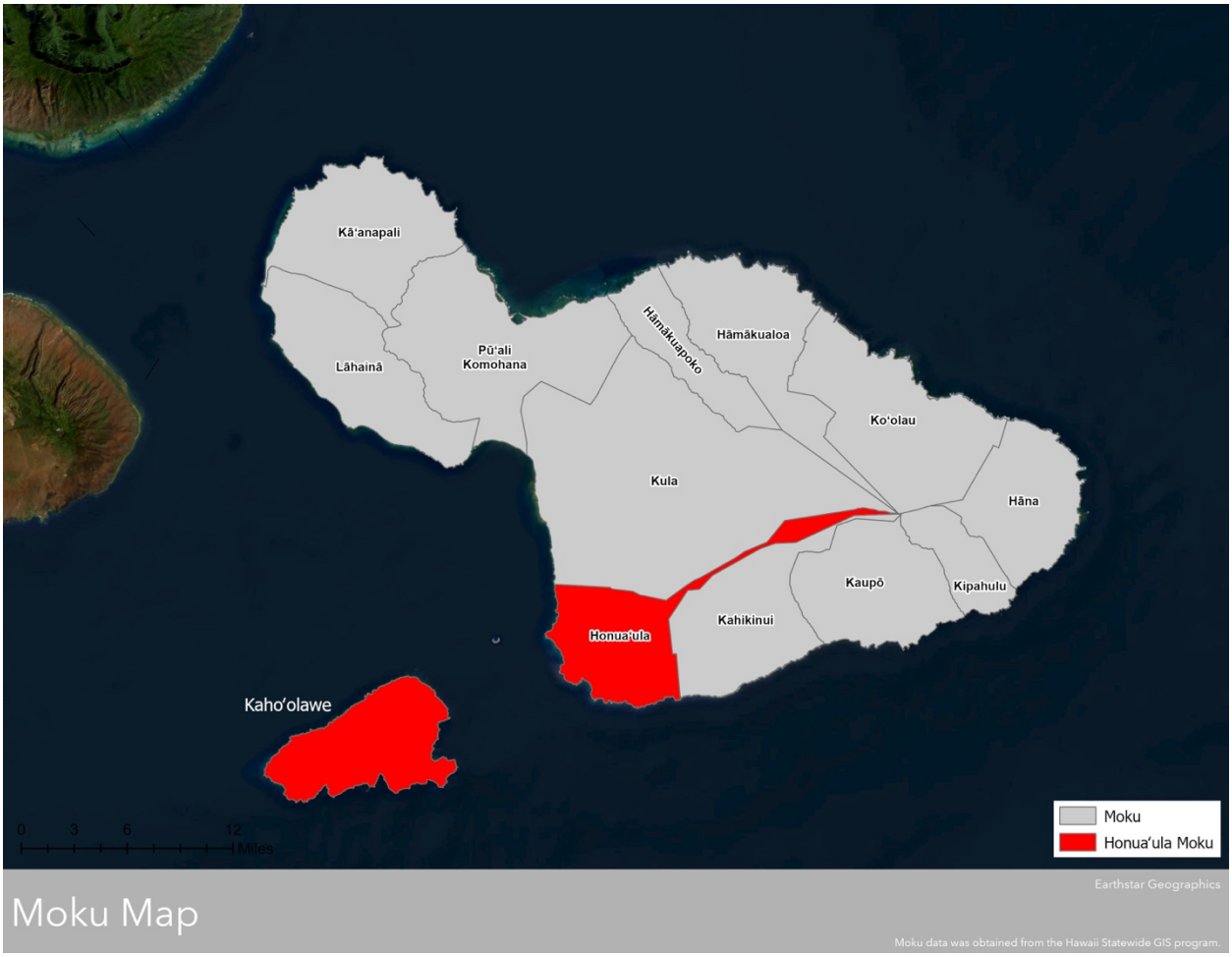
Dominant features of Maui, an island within the Hawaiian archipelago, include a western mountain range named Mauna Kahālāwai and the massive shield volcano, Haleakalā, to the east. Haleakalā ranks as the world’s third largest mountain from seafloor to peak, with its 10,023-foot summit at Pu‘u‘ula‘ula. The project area rests at the base of Haleakalā’s leeward flank.
From another genealogical history, we learn that Maui was the second largest of the island children born to Wākea (Sky Father) and Papahānaumoku (Earth Mother). As Hawaiians settled into their new home islands and inter-archipelagic voyaging ceased, approximately 600 years ago, they innovated land, sea and food management from a learned understanding of the place. For example, Maui was divided into 11 or 12 major districts or moku, including Honua‘ula. The moku were further divided to more manageable and connected sections of land and sea – ahupua‘a – that allowed for the people of that place to connect more deeply and build relationships with their resources. Ahupua‘a tend to include lands similar to a watershed, as well as extending to the ocean fisheries of the near and deep seas that are fed by the runoff from that watershed (Kumu Pono Associates LLC, 2005, p. 9).

Captain Jean-Francois de Galaup, the first westerner to make landfall on Maui (in 1786), began a transformation of the island that once held the capital of the Hawaiian Kingdom. Missionaries, whalers and other western traders made Maui a major port of call, and agriculture expanded to feed this new population and support the galleys of ships. Western diseases came with these new populations, and the once-isolated population of Native Hawaiians began to plummet, at one point to less than 10% of its pre-contact numbers (Blaisdell, 2001).

Moku of Honua‘ula

Honua‘ula moku’s large size encompasses 20 ahupua‘a: Paeahu, Palauea, Keauhou, Kalihi, Waipao, Pāpa‘anui, Kā‘eo, Maluaka, Mo‘oiki, Mohopilo, Mo‘oloa, Mo‘omoku, Onau, Kanahena, Kualapa, Kalihi, Papaka Kai, Kaunuahane, Kaloi, and Kanaio (Kīpaipai Archealology Program, 2025, Honua‘ula: People, History, Culture). Figure 14 shows the range of this moku, from the peak of Haleakalā, to Molokini and Kaho‘olawe, with all of the oceans and currents among these coastlines. This moku includes people of the uplands, coasts, smaller islands and the sea.

Figure 14. Map of Moku of Honua‘ula



According to first-person accounts, Honua‘ula’s environment changed dramatically with the introduction of cattle (Kumu Pono Associates LLC, 2005, pp. 10-11). When much of the uplands were forested, the high mountain of Haleakalā helped to create and capture a morning dew that would blow on cool breezes down the leeward slope that comprises Honua‘ula, keeping the forests and crops moist. That same climatological process created a cloud bridge (Nāulu) that linked Honua‘ula’s Maui lands to Molokini and part of Kaho‘olawe, keeping all of them green with native plants that thrived in limited but consistently moist conditions. Ranching

cleared the lower bands of native dry shrub and forests in broad swaths from the uplands to the coast. This pushed the native forest more mauka (upland), which changed the rain patterns that had enabled previous generations of Hawaiians to successfully farm the arid shoulders of Haleakalā. They had created ground-level aqueducts that channeled the more regular rain toward their crops of sweet potatoes, dryland kalo, bananas, etc. (Ibid.). Along the shoreline, including in Makena, fishing communities traded their sustainably caught fish with the upland communities, supplementing their diets with what crops they could grow along the more arid shore. The fisheries within their ahupuaʻa included waters beyond nearshore reefs, encompassing those around Molokini and Kahoʻolawe (Ibid.).

As westerners found Hawaiʻi's shores and infiltrated the traditional land management systems, land was acquired and used more for immediate economic gain. Honuaʻula was not exempt, with its lands becoming covered with cattle, sugar cane and Irish potatoes. This shift in tenure and management denuded much of the land, planting it in monocultures of invasive species that did not feed the land or Hawaiʻi's people, physically or spiritually. Long-term and dramatic climate and cultural changes ensued, such that Native Hawaiians are no longer the predominant people of this place, and the environment is more drought-prone, fisheries are depleted, and invasive plants and animals have taken over much of the moku. Broken is the hydrologic cycle of the cloud bridge that had formed in the mists and fog of Haleakalā, was intercepted by the native forests, and provided for the rains over Kahoʻolawe, all of which then fed the nearshore ecosystems that rely on steady freshwater influxes.

Maui County government began to grow South Maui's tourism market in the 1970s, from Kīhei through Wailea. Wailea, just northwest of the project area, developed into a golf and resort region, and the Makena area followed suit, with the Maui Prince Hotel and two golf courses. ʻUlupalakua Ranch sold the current project area, which had been mostly used for cattle grazing, to The Seibu Group of Japan in 1973. Within a decade, development of Mākena Resort began. Over several decades, Maui people have experienced waves of influxes of off-island people coming to Maui as visitors and parttime residents within resort areas.

In 2010, Maui County adopted its Countywide Policy Plan through 2030, including an objective for improving land use management and planned growth that would in part require identifying and defining "resort-destination areas" within future island and community plans that would implement the countywide plan (County of Maui, 2010, p. 75). Two years later, in 2012, Maui County adopted the Maui Island Plan: General Plan 2030, with an introduction that described the plan as "a blueprint that provides direction for future growth, the economy, and social and environmental decisions" through 2030 (Maui County, 2012, p. 1-1). According to the Maui Island Plan, Maui Island's vision is: "Ua mau ke ea o ka ʻāina i ka pono. Maui Island will be environmentally, economically, and culturally sustainable with clean, safe, and livable communities and small towns that will protect and perpetuate a pono lifestyle for the future" (Maui County, 2012, p. 1-16). To attain this vision, the Island Plan lists the following values, many of which address social issues and needs and are reflective of public concerns that were heard during the EISPN scoping meetings (See Appendix A) and via the SIA survey:

- Adopt responsible stewardship principles by applying sound natural resource management practices;

- Respect and protect our heritage, traditions, and multi-cultural resources;
- Plan and build communities that include a diversity of housing;
- Retain and enhance the unique identity and sense of place;
- Preserve rural and agricultural lands and encourage sustainable agriculture;
- Secure necessary infrastructure concurrently with future development;
- Support efforts that contribute to a sustainable and diverse economy for Maui;
- Create a political climate that seeks and responds to citizen input;
- Respect and acknowledge the dignity of those who live on Maui;
- Establish a sustainable transportation system that includes multiple modes, including walking, biking, and mass transit, as well as automobile-based modes; and
- Recognize and be sensitive to land ownership issues and work towards resolution.

(Ibid.)

Also, as requested by the Countywide Plan, the Island Plan provided a definition for a "resort destination area." Such an area is: "One of the planned resort destination areas of Kāʻanapali, Kapalua, Mākena, and Wailea, which is intended as a major tourist destination area, consistent with the general and community plans" (Id., p. A-4).

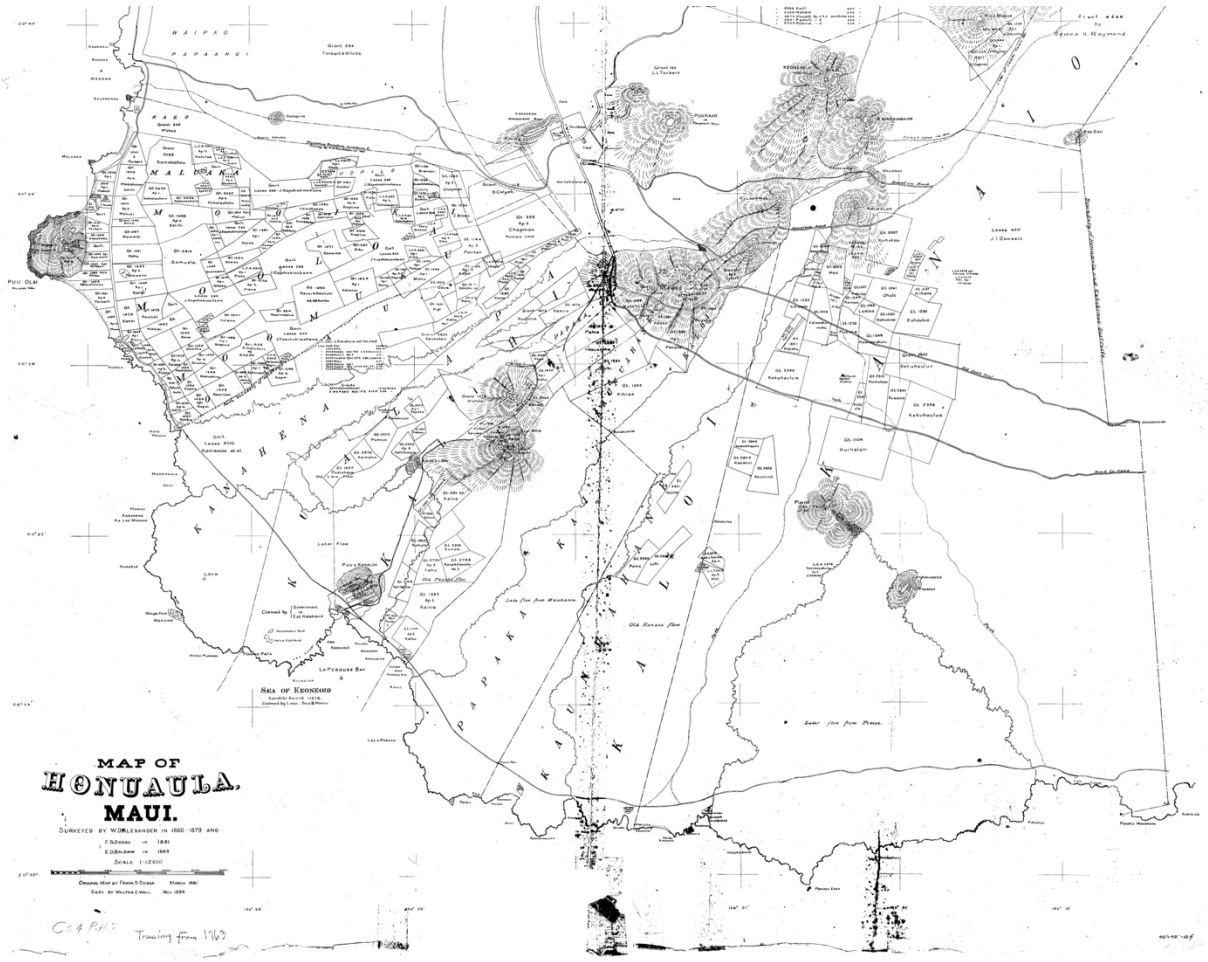
As for the relevant community plan, the Long-Range Division of Maui County's Planning Department currently is amidst the public process of updating the 1998 South Maui Community Plan (SMCP) to be consistent with both the Countywide and Island Plans. The draft documents of the SMCP have been referred to the County Council after public hearings in front of the Planning Commission. As directed by the Countywide plan, a definition for what the SMCP calls the Resort/Hotel designation provides for existing and future visitor-focused development in its designated areas (such as Makena).

The Maui County Council issued Ordinance 3613 for the Makena Resort Area in 2009, and the draft SMCP describes the development of such areas as "typically medium- to high-density with a broad range of uses primarily intended to serve visitors, including transient accommodations, retail and commercial uses, and other visitor amenities. Related and compatible uses include parks and other public/quasi-public uses. Public beach access must be provided as required by law and will not be discouraged" (County of Maui, 2025). Specific, relevant designations in the SMCP for the Mākena Mauka project, which is within the Makena Resort Area, include Parks (no development and inclusive of golf courses), Rural Residential (low density development) and Residential (medium to low density development), all of which are what the applicant is proposing.

Mākena Mauka's project area falls within the district of Makawao, moku of Honuaʻula, and portions of it cross nine of Honuaʻula's 20 ahupuaʻa: Keauhou, Kalihi, Waipao, Pāpaʻnui, Kāʻeo, Maluaka, Moʻoiki, Moʻoloa and Moʻomuku. (See Figure 15.) Immediately surrounding the project area on the ocean side are such public sites as the historic Keawalaʻi Church, Makena Landing, Maluaka Beach and Makena State Park, which includes Oneloa (Big Beach), Oneuli (Black Sand Beach) and Puʻu Ōlaʻi (Little Beach and a dormant volcanic cinder cone point that rises 360 feet above sea level). On the other boundaries of the project area, to the south, east and north, are the remains of low, leeward dryland forest and the pasture lands of large landholder ʻUlupalakua Ranch. From the coast to the upper reaches of the property, the project area rises to

approximately 1,200 feet in elevation. The coastal areas of the Makena region were known for the variety and abundance of their marine resources, including multiple types of limu to be gathered and sea creatures to be fished.

Figure 15. 1894 Map of the Moku of Honua‘ula



(Hawaii Land Survey Registered Maps, 1825 to 1970)

The project area resides within a relatively dry area of the coastline, maintaining a sunny climate for most of the year, with annual temperatures at Makena Golf Course ranging from an average low of 66.3 degrees Fahrenheit to an average high of 83.9 degrees. The highest average temperature taken at the Makena Golf Course site is 87.3 degrees in August, and the average lowest temperature at the same site is 63 degrees in February. Northeasterly trade winds, averaging approximately 10 to 15 miles per hour, prevail from 80% to 85% of the year (Maui Data Book 2020, County of Maui Office of Economic Development).

The annual rainfall average for the project area is 15.70 inches of rain, with the wettest month generally being January (2.48 average inches) and the driest month in this location usually being April (0.75 inches) (Id.). The annual total rainfall measurement from the Mākena Golf Operations, as self-reported, appears to be on a downward trend. The rainfall total reported in

2017 was 20.61", in 2018 it was 20.51", in 2019 the total dropped to 10.81", and in 2020 7.83" of rain were reported from Mākena. In 2021, the annual total rainfall increased a bit, to 10.53", and then in 2022 rainfall appeared to be on a rebound, increasing to 17.45." However, the following years continued to document drier than average conditions, with 11.99" reported in 2023 and 11.68" in 2024, all from Mākena Golf Operations.

Cumulative Impacts in and around Honua'ula

According to current Hawaii Administrative Rules (HAR), when analyzing the environmental impacts of a proposed project, cumulative impacts must be considered as well. The definition of cumulative impacts includes "the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions" (HAR §11-200.1-2). When the proposed action is added to existing and other planned actions, no matter their individual sizes or impacts, the resulting cumulative impacts should be examined for their "collectively significant actions taking place over a period of time." (Ibid.) Table 9 documents the new projects – proposed and underway – surrounding Mākena Mauka. Of the ten projects in this table, seven are already entitled or permitted. Of those, four are under construction or recently completed. Two projects are just at the visionary stage. The potential impacts of those two cannot be adequately assessed, but the possibility of their additional development must be noted.

Table 9. Descriptions of other developments near and around Mākena Mauka

Maluaka Development	
Includes	13 single-family units 6 multi-family condominium units
TMK Nos.	(2) 2-1-006:037
Development Status	Construction began in 2009 and received an extension to be completed by July 31, 2026. As of July 2024, the following was complete: on- and off-site infrastructure, 6-unit multi-family building, and 6 single-family homes. 7 single family units remain to be completed.
Makena H-M Redevelopment Project	
Includes	Conversion of the former 310-room hotel at Mākena Beach and Golf Club Resort into a combination of a hotel, condominium, beach cottage units and a spa hale. A total of 65 units are proposed.
TMK Nos.	(2) 2-1-005:086 (por.)
Development Status	SMA Permit Amendment was approved in 2017. 58 units completed. Construction of remaining 7 units and Beach Club initiated in 2024.
Makena Resort M-5/M-6/S-7/B-2 Project (Kaeo)	
Includes	Mixed-use project on a site of approximately 47 acres: 30 multi-family units 18 single-family cottages 32 single-family custom lots 9 TVR units 14 condos 27,300 square feet of commercial space

TMK Nos.	(2) 2-1-008:080, 098, 099, 100 and 106
Development Status	SMA Use Permit amended in 2021. Infrastructure for first phase of 16 condominium lots completed in 2024.
Wailea 670	
Includes	Master-planned residential community on approximately 670 acres, with single- and multi-family homes, village mixed use, public access preservation and conservation areas (170 acres), and 120 acres of recreational and open space areas. No golf course. At least 288 units of the 1,150 allowed residential units on site will be affordable housing.
TMK Nos.	(2) 2-1-008:056 (por.) and 071
Development Status	Entitled, with an anticipated 20-year build out horizon.
Ledcor Wailea Projects	
Includes	Last of the residential projects within the Wailea Resort and Part A of the Kilohana Subdivision. Includes a mix of single- and multi-family residential neighborhoods. Between 925 and 975 single- and multi-family units. Includes community open space, workforce housing, parks and recreation areas.
TMK Nos.	(2) 2-1-008:114, 127, 128, 130, 132, 133, 135, 136, 143,145, 147, 148 and 154 (CPR unit 2); (2) 2-1-028:002 and 005; (2) 3-9-037:073; and (2) 3-9-038:028 and 049
Development Status	Final EIS accepted.
Grand Wailea Enhancement Project	
Includes	Includes addition of 137 resort guest rooms and other improvements, including resort pool areas and public parking.
TMK Nos.	(2) 2-1-008:109
Development Status	SMA permit application under review (contested).
Proposed H-2 Residential Project	
Includes	Up to 53 condominium lots on approximately 28 acres in Mākena.
TMK Nos.	(2) 2-1-005:085
Development Status	SMA Use Permit approved.
Makena Resort U-1 Project	
Includes	Agricultural residential subdivision to include 36 agricultural lots, ranging from 4 to 95 acres, on a total of 666 acres. Portions of 5 of these lots will be dedicated to an approximately 103-acre dryland forest agricultural conservation area. Additionally, the project includes 7 lots designated for roadway, pedestrian or other restricted uses.
TMK Nos.	(2) 2-1-031:001 to 043
Development Status	Infrastructure construction initiated in 2024.
Wailea Golf Course Properties	
Includes	Wailea Golf LLC proposes a planned, mix-use development among 214 acres, to include a resort hotel and between 856 and 1,070 housing units, with between 198 and 247 being workforce housing.

TMK Nos.	(2) 2-1-008:118, 134, and 140
Development Status	This proposal has been included for possible land use designations within the current draft of the South Maui Community Plan, which has been sent from the Maui Planning Commission to the Maui County Council for review and approval in 2025.
'Ulupalakua Ranch Renewable Energy Projects	
Includes	There has been ongoing consideration for large-scale solar or geothermal renewable energy projects on 200 acres of 'Ulupalakua Ranch land, however, no specific project is proposed at this time.
TMK Nos.	(2) 2-1-008:001 (por.) and (2) 2-1-008:056 (por.)
Development Status	No current project is currently proceeding, but potential remains for future development.

According to EISPN testimonies and SIA survey responses, people have negative expectations about development of their island based on past experiences and changes to Maui. Some of these expectations are based upon seeing several development applications within South Maui, as depicted in Table 9. Community members have expressed fears of a continued loss of sense of place, of what makes Maui special to them. The State Environmental Policy seeks to create or maintain communities with a sense of place and identity that are developed in harmony with the Hawaiian environment (HRS, Chapter 344, §3(2)(C)).

Figure 16 illustrates the number and spatial size of the collective, proposed projects in the area and provides some context for the social outcry against the number of developments in the region. The map shows the patchwork of proposed and progressing development project areas described in Table 9. It does not incorporate the respective densities of the developments in each project area, however. Some of the larger project areas represented in Figure 16 have some of the smallest structural footprints. For example, Makena Resort's U-1 project (light blue and to the northeast) allows for minimal residential construction across its 36 agricultural lots. Also, 'Ulupalakua Ranch's proposed renewable energy project (green and to the northwest) never intended to include homes and now does not include any intended development in the near future. (Note: The swath of green crossing Wailea 670's pink project area represents a previously intended temporary access easement and use that was included in this map because it was part of the original proposal. That access no longer applies.) On the other hand, some of the nearby developments have higher densities than those proposed for Mākena Mauka.

Figure 16. Cumulative impacts

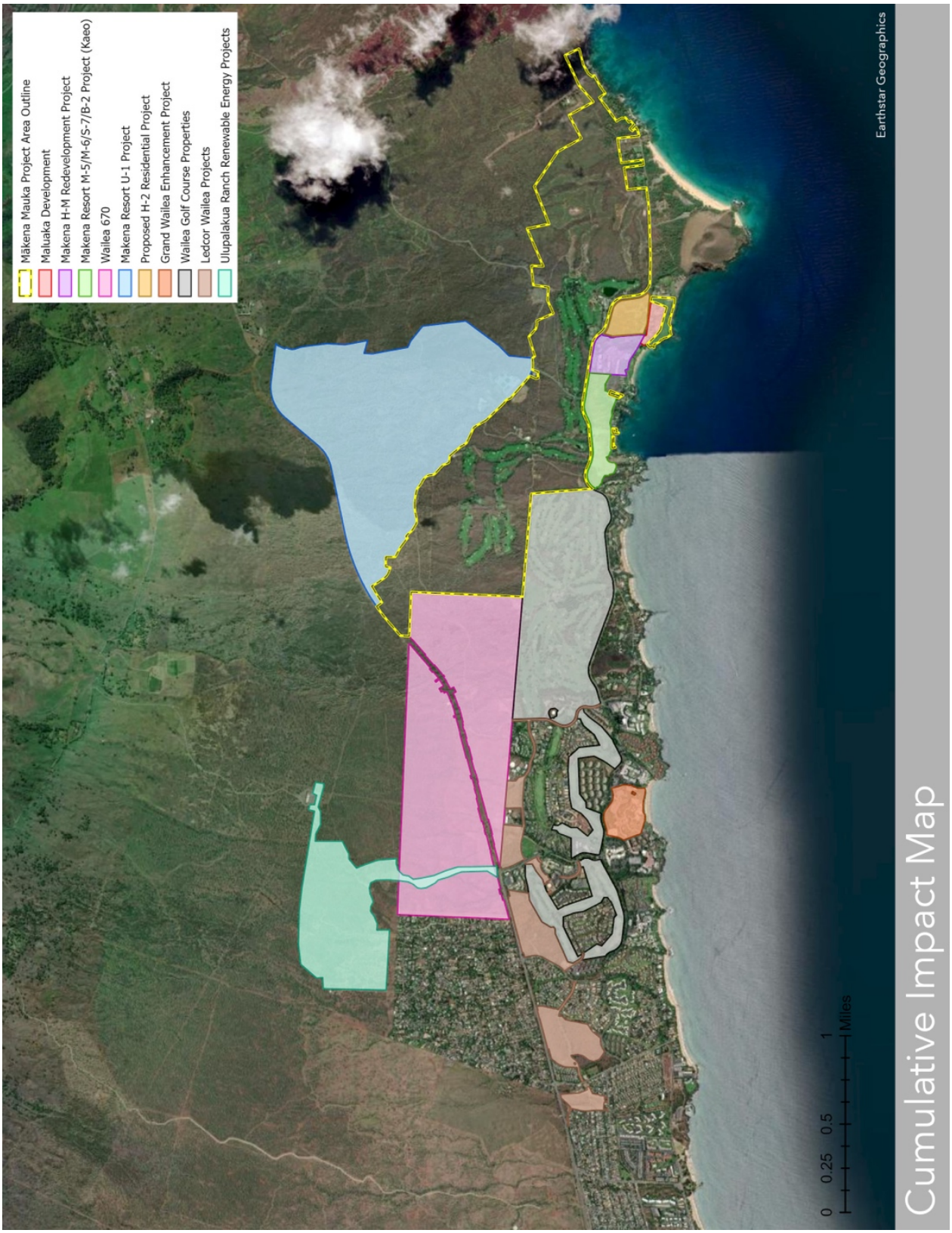


Figure 16 also helps to illustrate the need for cohesive planning for infrastructure to support Maui residents, these developments and their interwoven needs. Common infrastructure concerns noted in the EISPN scoping meetings and in the SIA survey include increased drain on the electrical grid, traffic on already crowded roads and highways, and draw from the Kama‘ole Aquifer in a drought-prone area that requires fresh water for the health of the area’s people (i.e., residential and wastewater uses), land, and marine environments, all of which are sourced from the same aquifer. The development and landscaping of these connected properties also raised concerns about the need for increased storm drainage and control of the collective runoff of valuable soils and damaging pesticides and herbicides. Questions were asked about the planting of non-native, invasive and non-food-generative plants across wide sections of land that could further deplete water resources and food security while adding to a drought-prone area’s fire hazard and mass evacuation needs.

To facilitate cohesive planning that addresses many of the reported public concerns, part of Hawai‘i’s land use entitlement and public review process can involve change in zoning district applications, as it did for most (if not all) of the listed developments in Table 9, as well as for the applicant. In 2008, after review by applicable Maui County agencies, the applicant’s proposed change in zoning for properties, including that of Mākena Mauka, was heard by the Maui Planning Commission through a process of public hearings. The planning commission considered the cumulative and anticipated development in this region and the public’s concerns at that time when it recommended that the Maui County Council approve what became Maui County Ordinance No. 3613 in 2009. The Change in Zoning for Makena Resort Area (Maui Ordinance 3613 (2009)) includes 44 conditions. The applicant’s intended and actual compliance with the conditions inform mitigations to avoidable impacts in the Proposed Mitigation Strategies section.

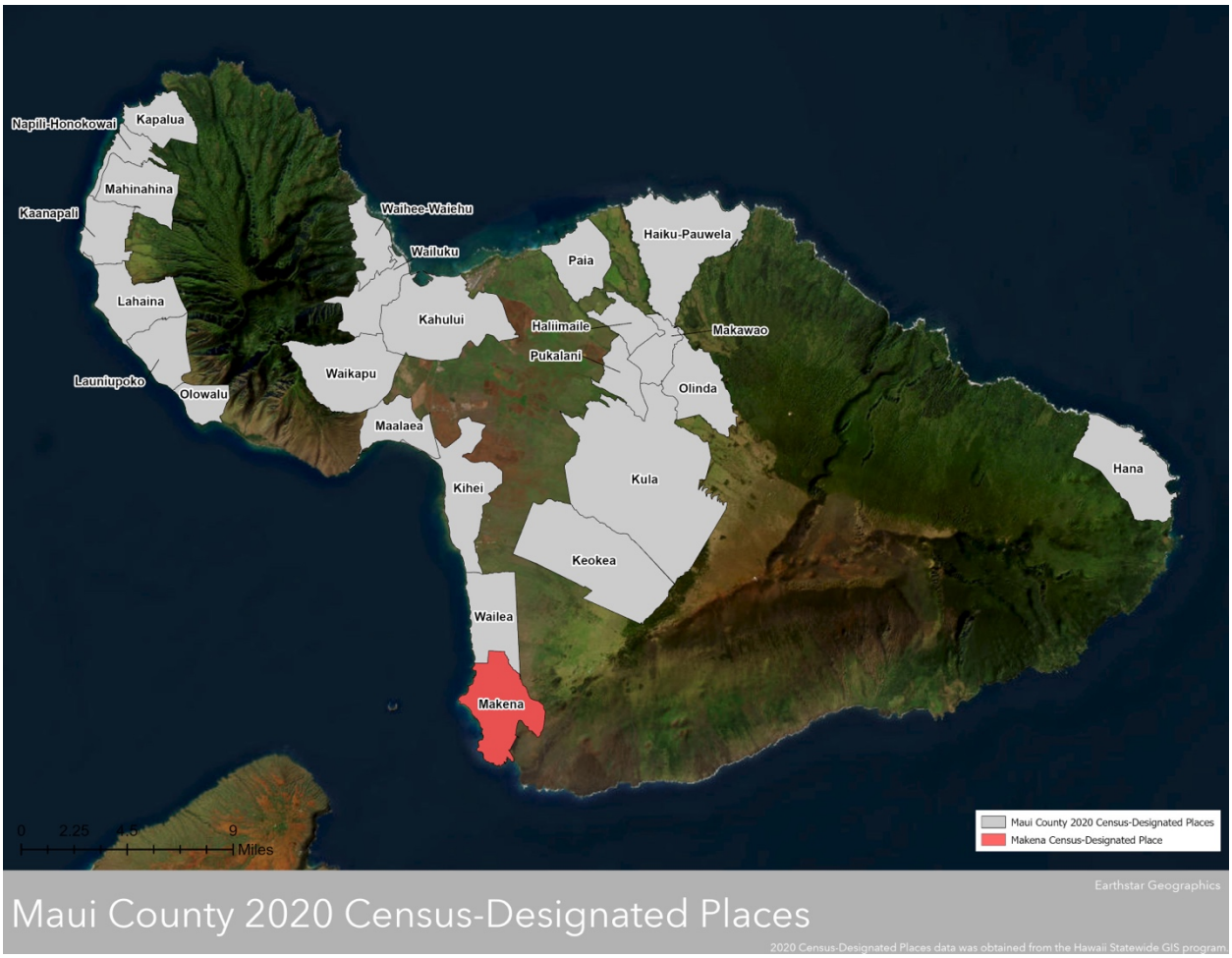
Demographics

Understanding the social perspective of people who would foreseeably be impacted by the proposed project requires quantitative data on the region’s social fabric. This section provides data on the comparative demographics of Hawai‘i, Maui and the Census-Designated Place of Makena. The data further contextualizes the results of the SIA survey, which then informs next steps toward mitigations in alignment with values and needs of the people of the place.

Current Community Profile

Referenced below are statistical data about Hawai‘i, Maui County, and the Census-Designated region for Makena, all of which were gleaned from the U.S. Bureau of the Census website. Census-designated places (CDPs) were created by the Census Bureau to differentiate among community-based populations. Makena has its own CDP, as shown in Figure 17.

Figure 17. 2020 Census-designated places: Maui



The availability of these narrowing scopes of data allows for a statistical examination of who currently lives in these areas and how that pertains to perceptions of the broader community about the area. Table 10 lists elements of direct comparisons among all of Hawai‘i, Maui County and the Makena CDP. Figures 18 through 22 illustrate each of those comparisons individually. According to these statistics, Maui County does not differ much from Hawai‘i in general, but the Makena CDP has some distinct differences, some of which fit within the perceptions of EISPN testifiers and SIA survey respondents. Many of these differences – provided as empirical data and verifying some community perspectives – were anticipated, given the intentional land-use and zoning decisions made by Maui County decades ago, when Makena was, and continues to be, designated as a resort destination area, as noted earlier.

Table 10. Comparable demographics among Hawai‘i, Maui County, and Makena CDP

Demographics	Hawai‘i	Maui County	Makena CDP
Median Age	41.4	43.3	62.6
Median Household Income	$95,322	$83,691	$188,750
Home Ownership Rate	62.4%	63.1%	98.3%
Education Attainment of a Bachelor's degree or Higher	37.0%	31.2%	51.8%
Employment Rate	57.0%	60.6%	35.1%

As also shown in Figure 18, while the median age in Hawai‘i and Maui County is in the early 40s, the median age in the Makena CDP is 62.6 years old.

Figure 18. Median age

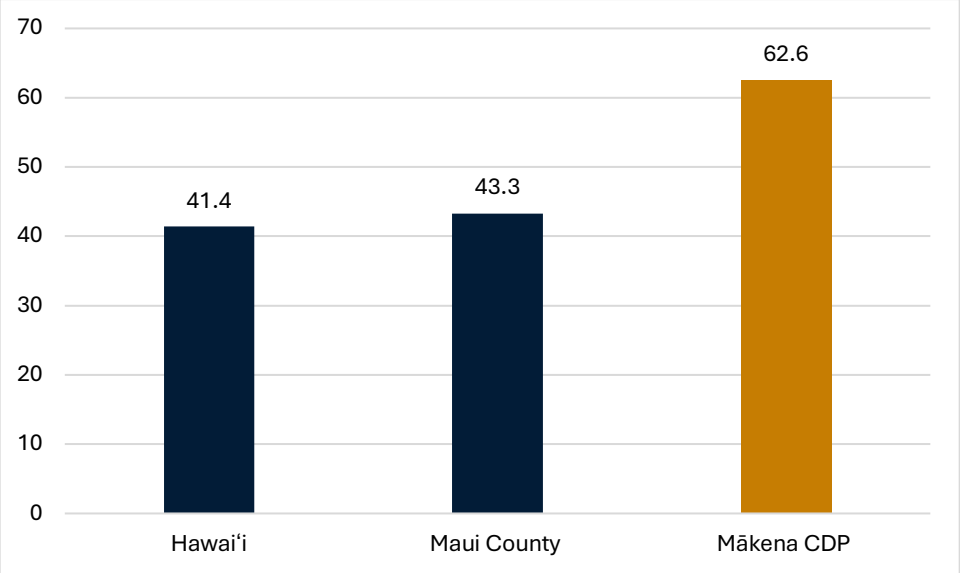
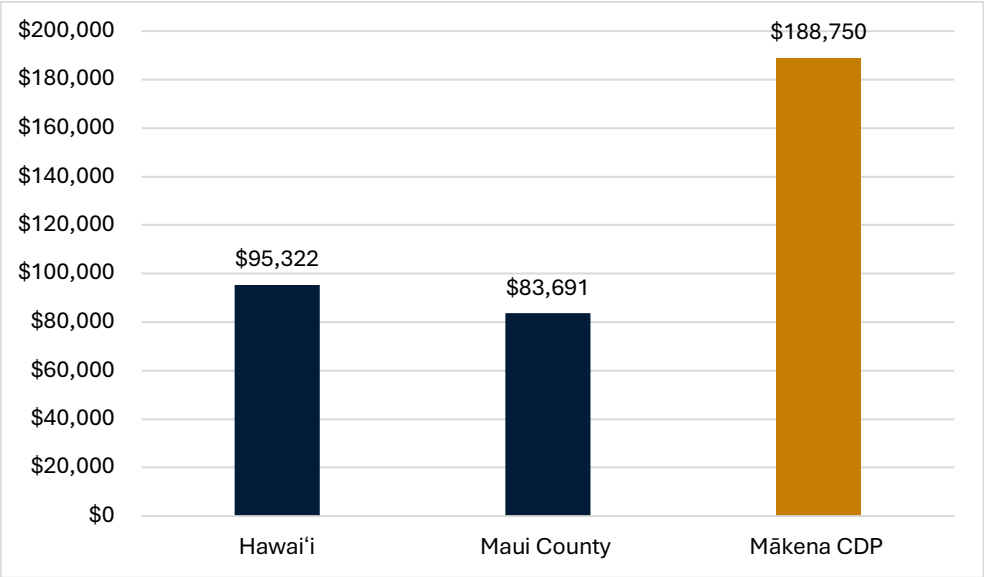


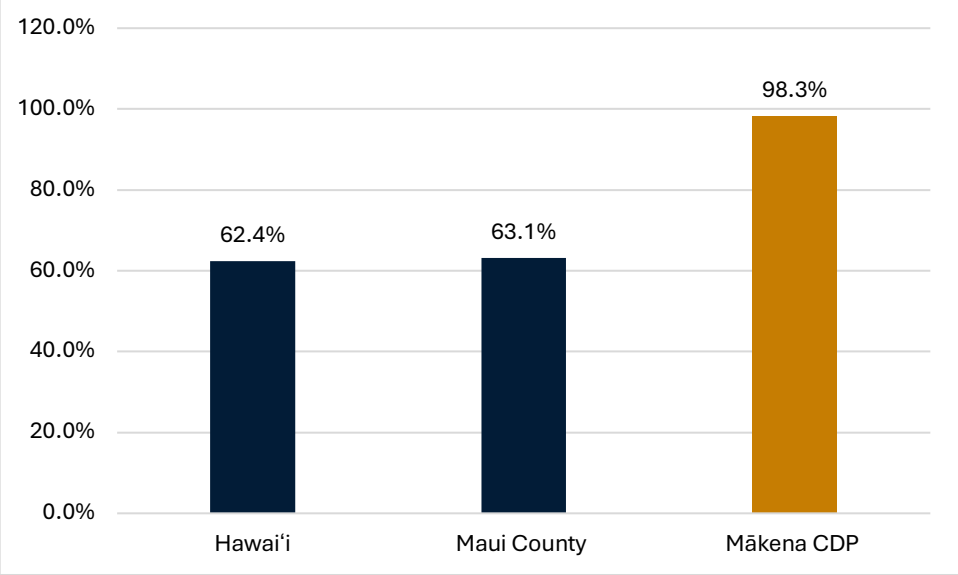
Figure 19 illustrates that the median household income for the Makena CDP is more than twice that of the median household income for Maui County and almost twice the median household income of Hawai‘i overall.

Figure 19. Median household income



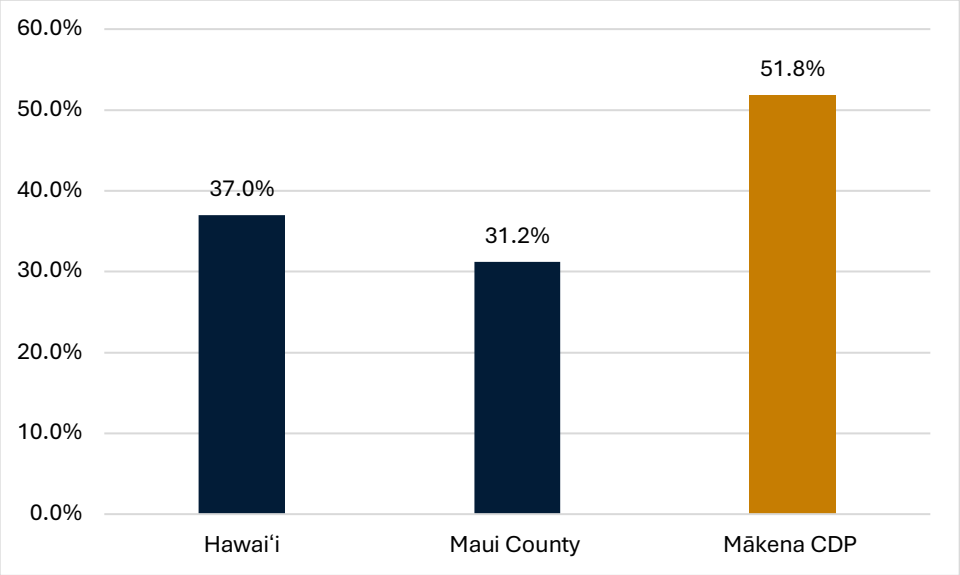
Home ownership in the Makena CDP is almost 100%, which Figure 20 illustrates is more than 30% higher than that of Hawai‘i and Maui County.

Figure 20. Home ownership rate



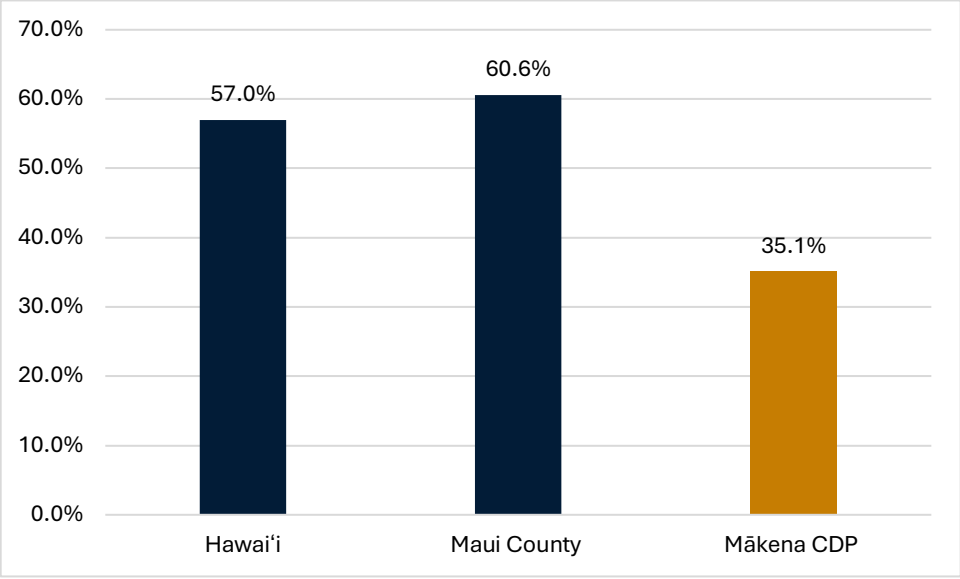
While slightly fewer than a third of Maui County residents, and slightly more than a third of Hawai‘i residents, have received a 4-year college degree or higher, Figure 21 shows that a little more than half of Makena CDP residents have attained that level of education.

Figure 21. Education attainment of a bachelor's degree or higher



In keeping with the median age of people living in the Makena CDP being in the retirement range, fewer people living there are currently employed. Figure 22 shows that the number of people who are employed and living in Makena CDP is at least 20% fewer than that in all of Maui County or in all of Hawai'i.

Figure 22. Employment rate



Analysis of Survey Participants

Next, to contextualize the demographics of the SIA survey respondents, some responses from the survey (e.g., household income, educational attainment) are set side by side with comparable demographic data of Maui County and the Makena CDP. In Table 11, the self-reported demographics of the survey takers – approximately 86% of whom live on Maui, and 94% of whom live in Hawai‘i – varied in a few significant ways from Census data about Maui County in general and the Makena CDP. As above, Maui County and Makena CDP statistical information was gleaned from data collected by the U.S. Bureau of the Census, which last collected baseline data – as it does every 10 years – in 2020.

Table 11. Self-reported demographic data from SIA survey respondents as compared to Maui County and Makena CDP

Categories	Survey %	Maui County %	Makena CDP %
Income			
$0 – $49,999	20.9%	26.3%	22.4%
$50,000 – $99,999	27.0%	31.4%	10.3%
$100,000 – $159,999	23.5%	16.8%	3.4%
$160,000 – $199,999	8.7%	10.7%	20.7%
$200,000 – or more	20.0%	14.8%	43.1%
Education			
Less than high school degree	0.7%	7.3%	2.6%
High school degree or equivalent	7.8%	28.8%	21.1%
Some college but no degree	14.2%	20.7%	9.6%
Associate’s degree	6.4%	12.0%	14.9%
Bachelor’s degree	37.6%	20.2%	25.4%
Graduate degree	33.3%	11.0%	26.3%
Employment			
In the labor force	71.6%	62.9%	35.1%
Ethnicity*			
Hispanic/Latino	0.0%	10.3%	8.6%
Black or African American	0.0%	0.6%	1.0%
Other	6.5%	0.5%	1.5%
Asian	19.0%	26.3%	2.0%
American Indian or Alaska Native	0.0%	0.2%	1.0%
Native Hawaiian or Pacific Islander	23.0%	11.5%	8.2%
Multiple races	25.4%	19.1%	18.9%
Caucasian	51.5%	31.5%	58.7%
	Survey Household Size	**Maui County Household Size**	**Makena CDP Household Size**
Mean (average number of people in household)	2.73	2.84	2.03

* Survey respondents could provide multiple answers to the Ethnicity question. Therefore, the total in this section of the Survey column will not add to 100%

Examined by category, Table 11 shows that in comparison with the demographics of Maui County in general, the SIA survey respondents included an over-representation of those who self-reported as Caucasian and Native Hawaiian, and an under-representation of Hispanic/Latino participants. Compared to residents of Makena CDP, the percentage of Caucasians who participated in the SIA survey aligns more directly. The percentage of Native Hawaiians who participated in the SIA survey remains more than twice that of those who live in Maui County and almost three times that of those who live in the Makena CDP, documenting the level of interest in and care by that population for an area that has cultural and historic significance to them.

Table 11 also depicts that the majority of SIA survey participants include income categories that likely would enable them to qualify for Maui workforce housing (71.4%), but the survey did not ask whether they were homeowners. (See the "Affordable Housing" mitigation topic below.) Meanwhile, the Census data showed that people living in the Makena CDP overwhelmingly own their own homes, and Table 11 shows that 43.1% of them have household incomes above that which would enable them to qualify for workforce housing. Table 11 also documents that the majority of SIA survey respondents are in the workforce (71.6%), more than the number in Maui County (62.9%) and double that of those living in the Makena CDP. This data about the Makena CDP in part documents the resulting demographics of a County-designated resort area. The different data about the SIA survey participants provides an impetus for the applicant to be directly informed by people who work within and serve the project area during the focus groups, because they will be affected by the project, and the anonymous survey data cannot be mined for their specific information.

The data in Table 11 also depicts a possible over-representation of people with college degrees in the SIA survey. The U.S. Census Bureau reported in 2020 that a third of Maui County residents (almost 33.3%) had not completed any college degree, and the SIA survey respondents reported that only 22.7% of them had not completed a college degree. Approximately 77.3% of SIA survey takers and 66.6% of residents of the Makena CDP have a college degree. Those who were not represented in the SIA survey, but who may be impacted by project impacts on future generations are current South Maui high school students and University of Hawai‘i Maui College students, either from South Maui or majoring in subjects relevant to environmental impacts in general, such as natural resources management and planning.

Focus Group Interviews Using a Design Thinking Approach

Informed by the SIA survey and short answer responses and by the various imbalances noted in each of the above comparative, demographic data, the SIA team finds that further qualitative investigation to understand the context of responses by key participants is warranted. Some demographic groups were seemingly under- or over-represented via the demographics of the SIA survey participants, and some groups were overwhelmingly recommended by SIA survey participants to have their voices elevated and prioritized, such as the lineal descendants of the Makena area and Native Hawaiians of Honua‘ula moku.

Therefore, the SIA team intends to conduct targeted focus group interviews using a design thinking approach between the publication of the Draft and Final EISes. Reports on the results

and applications of what is learned will prioritize and refine the operationalization of the recommended mitigations that follow. In research, this is called "mixed methods," because findings from the SIA survey (both quantitative and qualitative short answer) will inform the moderator (i.e., interview) guides for the focus group interviews, therefore sequentially "mixing" methods to best answer the original questions (Meissner et al., 2018; Tariq & Woodman, 2013). To address the lack of trust expressed by survey respondents in either the actual implementation of mitigations or in the positive impacts of those mitigations, the applicant should work to help ensure – as much as possible – positive and lasting outcomes that benefit the communities most impacted by this proposed project. Design thinking-based focus groups will function as collaborative working groups toward such end goals and as targeted participants in the public, environmental review process. See below for the Mitigation topic "Build Trust" for more detail about the focus groups, which will be an interim mitigation.

Social Impacts and Proposed Mitigation Strategies

Descriptions of social impacts and their proposed mitigation strategies follow. They are embedded and highlighted within topics of general concern – or mitigation topics – that arose through analysis of the EISPN scoping comments, the SIA survey results, and community conditions. To determine the following 13 mitigation topics, each of which will be further described and explained below, the SIA team applied our foregoing analysis to identify topics suitable for possible social impact mitigation measures. Please see Appendix A for a table that consolidates the general concerns presented during the EISPN scoping process with the themes, categories and sub-analyses resulting from the SIA survey.

Because social elements can be argued to be woven throughout the environmental review process, the SIA team seeks to ensure and document that the social elements of potential impacts by the proposed project are addressed somewhere in the overall environmental review process. Therefore, where any documented social concerns have been addressed and mitigations have been proposed or the concerns have been shown to have been mitigated, those completed, ongoing or committed actions are reported below. Where some social concerns have been analyzed and addressed through other consultants' reports that also are appended to the Mākena Mauka Draft EIS, that also is noted below and in the table in Appendix A. In many instances, consultants and their resulting reports were sought and contracted by the applicant in response to public comment and requests during the EISPN comment period. For example, one of the concerns brought up in the EISPN scoping meetings was that of possible social impacts from the Mākena Mauka project, which resulted in this SIA being commissioned.

The SIA team anticipates that the upcoming focus group discussions will help identify which proposed mitigations for the Mākena Mauka development are most critical to affected community groups and most likely to effectively address their concerns and needs. (See "Build Trust", below.) By conducting the focus groups after publication of the Draft EIS and before publication of the Final EIS, the applicant creates the interim mitigation of showing care for – and learning more about how to improve – the holistic wellbeing of the place and the people of the place. In its Environmental Policy, the Hawai'i legislature notes that socially, the active review of possible environmental effects helps to enhance and generate environmental awareness and collaboration.

Mitigation Topics (in alphabetical order)

The 13 alphabetized mitigation topics are described below in narrative form. Social impacts are labeled, with specific mitigations proposed for each. For the purposes of this SIA, **social impacts** are effects on elements of the human experience that are anticipated to be caused by the proposed Mākena Mauka project and that are not otherwise accounted for or represented in other specific consultant reports appended to the Draft EIS.

In some cases, a mitigation topic's strategies address concerns noted previously by EISPN testifiers and SIA survey respondents by describing current actions having been or being taken

by the applicant. When appropriate, the SIA team suggests the expansion and enhancement of those actions or the creation of new ones. Actions that can be reported as already initiated or as soon to be initiated are noted. Each mitigation topic ends with a bulleted summary list of that section's social impact mitigations, if relevant.

Affordable Housing

Throughout the EISPN scoping meetings and in the short-answer responses to the SIA survey, the majority of participants decried the current housing crisis in Maui, particularly after the Lahaina and Kula fires of 2023 destroyed more than 2,000 homes and businesses. Several testimonies and responses also requested clarification about how to apply for affordable housing and how it works and is defined.

The baseline for valuing what is "affordable" does not vary with local market rates, so affordable housing in a luxury development area is not more expensive than in any other residential area. On Maui, the equations to determine whether someone qualifies for either rental or for-sale rates depend on federal Department of Housing and Urban Development (HUD) guidelines, Maui's Area Median Income (AMI), and annual interest rates, all of which vary year by year. For example, the 2024 AMI for Maui County is $110,800, a standard that was set based on a two-income family in Maui County that year.

Workforce housing breaks down further into various income brackets. To continue with the 2024 example, and pursuant to Chapter 2.96, for-sale workforce housing units need to be offered in these brackets:

- 30% of the units need to be available to people with 80%-100% AMI ($88,640-$110,800),
- 50% need to be offered to people within 100%-120% AMI ($110,800-$132,960), and
- 20% need to be offered to people within 120%-140% AMI ($132,960-$155,120).

Next, Chapter 2.96 requires that for-sale prices be capped at 28%-30% of the unit buyer's annual income. If the development has government subsidies, then other costs, like taxes and insurance, can be included in this equation.

Maui County maintains a list of people interested in workforce housing. Once workforce housing projects begin, after the respective marketing plan is approved, a lottery is offered for applicants who have met the income and asset requirements, including not having owned residential property for at least three years before selection. Once a pool of qualified applicants is selected from the lottery, the applicants are ranked by the length of time that they have lived in the County. Workforce housing units are then offered based on that ranking.

Comments cited steadily increasing housing prices and property taxes and noted that these price increases may be tied to luxury home sales to people not from Hawai‘i who could afford such prices and did not live here year-round or integrate into the community. They made consistent calls for housing for local people, so that those locals could maintain generational connections to Maui and not have to leave the island or Hawai‘i in general. They requested housing for middle-

and lower-income local families and lineal descendants of an area first. One SIA survey participant wrote:

> *"Fill the 'Missing middle' of housing. We have luxury homes and 'affordable' housing projects, but not much that median-income individuals and couples can purchase."*

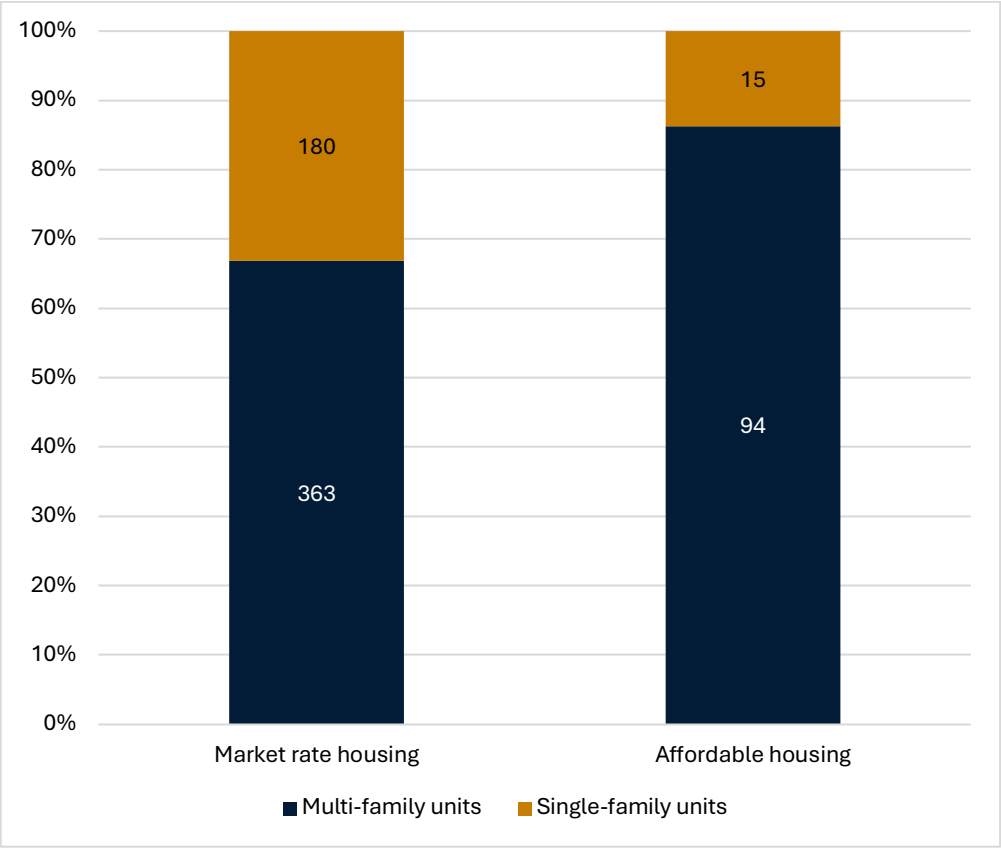
Comments received on this topic also noted a desire that affordable housing not emphasize or promote continued class differences. To help address that request, the Makena Change in Zoning (Maui Ordinance 3613, 2009) includes Condition 37, which requires that structures in their districts "be based on or inspired by principles of Hawaiian island architecture in design and construction," with an intent "[t]o exhibit respect for the Hawaiian culture and a Hawaiian sense of place." As such, the SIA team suggests that the applicant comply with that specifically for their affordable housing, thereby also addressing the Maui Island Plan value of retaining and enhancing the unique identity and sense of place of Makena (Maui County, 2012, p. 1-16).

Applicant's positive effects:

As reported below in the "Overcrowding Analysis and Prevention" section, the applicant increased the number of affordable housing units after the EISPN scoping period (from 100 to 109) and eliminated hundreds of market-rate units (from 800 to 543). Figure 23 depicts that of the 652 total dwellings currently planned for Mākena Mauka, the 543 market-rate housing units will include 363 multi-family units (66.9%) and 180 single-family homes (33.1%). The 109 affordable housing units – all of which will be on-site – will be comprised of 94 multi-family units (86.2%) and 15 single-family homes (12.8%).

After the devastating Lahaina and Kula fires, the applicant's Discovery Foundation donated more than $600,000.00 to various charitable organizations providing assistance to displaced residents. Mākena Golf and Beach Club members personally donated more than $10 million to numerous organizations after the fire, including the Hawaii Community Foundation and Maui Food Bank. Mākena members also have spearheaded Housing for Healthcare, LLC, which is an affordable housing project in Maui Lani that is comprised of 16 homes available to physicians, nurses, physician assistants and medical technicians for transitional living options while they search for a permanent Maui home. The applicant also provided meals for emergency workers and hosted an on-site golf event to thank emergency workers for their efforts. As noted in "Institutionalize and Expand Mākena's Aloha Makena Foundation", the applicant continues to host events that support such organizations as the Lahaina Land Trust.

Figure 23. Dwelling types



Social impacts:

- On-site, affordable housing amidst luxury homes in a resort-designated area do not afford local families amidst a current housing crisis with an optimistic vision for a long-term future for themselves or their children on Maui, increasing perceptions of local people not being a priority.

Mitigations to consider:

- Explore on-site perpetual rentals to ensure that affordable housing will be a consistent offering that will not sunset into market-rate housing.
- Design the workforce housing with island values and a Makena sense of place in mind.

Mākena Mauka Draft EIS appended reports for additional analysis & information:

- Design Guidelines
- Economic and Fiscal Impact Analysis Report
- Market Study
- Preliminary Engineering and Drainage Report
- Sustainability Report

- Water Resources Report

Build Trust

Authentic trust is reciprocal and fragile. It requires consistent listening, honesty, humility, and patience. Continuing to build relationships with the community is part of the kuleana – responsibility and privilege – of the applicant. Foreign occupation, the overthrow of the Hawaiian monarchy, and the imposition of western ideologies has had profound, multi-generational impacts on Hawai‘i’s social, environmental, and economic fabrics. One of the social results is an instinctive and pervasive sense of distrust of those who are not from Hawai‘i. This distrust is perpetuated when “outsiders” appear to or actually isolate themselves from or act disrespectfully toward Hawaiian or local communities. “Outsider” is a subjective term and not adopted by everyone. It can mean not Native Hawaiian, not born in Hawai‘i or on Maui, no generational ties to Hawai‘i, has not adopted local cultural norms, etc. Such distrust can be assuaged by employing community-driven approaches with mutually generated solutions to shared issues.

Trust also can be earned through proof of actions and regular, truthful communication. (See also, “Institutionalize and Expand Mākena’s Aloha Makena Foundation.”) Some individuals who participated in the EISPN scoping meetings and who completed the SIA survey challenged both how much the applicant’s consultants would listen to those with whom they consulted, and how much the applicant then would listen to, and follow through with actions, in response to their feedback.

Communication and actions that are not solely timed to public review and entitlement processes apply what has been heard and learned. Equally, consistent and regular check-ins and truthful communication and showings of good-faith collaboration show an honoring of promises made and an ability to evolve with lessons learned. (See “Institutionalize and Expand Mākena’s Aloha Makena Foundation.”)

Applicant’s positive effects:

The applicant not only made changes to their proposed project after listening to the testimony from the EISPN scoping period, but contracted this SIA, agreeing to publish the results of whatever was submitted via the anonymous online survey. The applicant further committed to learning more from their community, by agreeing to target specific groups of stakes- and rightsholders via focus groups.

Part of the impetus of the forthcoming SIA focus groups is to use a design thinking approach to create a constructive opportunity to continue to learn from and hear various community groups and stakes- and rightsholders about their concerns, prioritize those concerns, and collaborate on effective methods of resolution or improvement. After benefiting from the focus groups’ time, insights, and skills, the SIA team will share back what we understood as salient themes and key learnings to the participants, to ensure we heard them correctly and are applying their information appropriately. In qualitative research methods, this is called “member checking.” By seeking to learn more about the relative importance of various community concerns and social impacts, and the reasons behind the prioritized concerns and impacts, the applicant’s

decisions about their actions can become more values-based rather than possibly appearing to be only economically or transactionally based.

Design thinking focus groups are a type of human-centered design that solves real-world problems, while keeping people at the center. While many variations exist, design thinking includes 5 stages:

1. **Empathize**: Understand the subjects' perspectives and needs
2. **Define**: State the specific problem to solve
3. **Ideate**: Brainstorm solutions to problems
4. **Prototype**: Design solutions to the problem
5. **Test**: Assess the solution

These focus groups are approximated to occur in the Fall of 2025, after the publication of the Draft EIS. The focus group interviews will be conducted, recorded, transcribed verbatim, and analyzed using similar thematic analytic methods to those applied to the short answer responses to the SIA survey (Vaismoradi & Snelgrove, 2019). As with those responses, the preliminary findings and themes from the focus group interviews will be member-checked (Tracy, 2010) and analyzed early enough to inform decision making by the applicant about specific elements of ongoing and future mitigations that will be represented in the Final SIA and the Final EIS. The goal of these focus groups will be to collect constructive commentary from respectful conversations that directly address mitigations about concerns shared during the EISPN scoping meetings and in the SIA Survey. The questions for the focus groups will strive to achieve meaningful and purposeful clarifications from targeted community members participating in a discussion-based process. These focus groups will use a design thinking and consensus building approach to allow each group to rank possible mitigation strategies by "most important" and "most impactful." Each focus group will work together to collectively rank these strategies, and the focus of the ensuing conversation will be to discuss their rationale and their specific, actionable strategies for operationalizing the prioritized mitigations.

During these focus group interviews, moderators will task any given focus group to use a democratic consensus building strategy to rank social impact concerns based on the "highest" social impacts. Based on which social impacts are ranked highest by consensus from any given focus group, the associated proposed mitigation strategies for each highly ranked social impact will also be ranked. This will ensure that focus group participants understand what social impacts are being considered and what mitigation strategies are possible – and therefore can focus their efforts on sharing their perspectives within this contextual framework. To engage focus group participants in this task, the moderator will use written cards by which the focus group participants can physically arrange, rearrange, and reach consensus on their highest ranked social impacts and associated mitigations. The focus group interviews will be audio recorded, and to memorialize the final "ranked" social impact and mitigation strategies by any given focus group, the moderator will take a photo of the cards as they lie, in order of ranking. These photos will be analyzed along with the transcribed audio recording of the entire focus group interview.

Proposed composition of focus groups: (each to include 5-10 unique individuals)

- **Lineal Descendants** of the moku of Honua‘ula and/or specifically from the Makena area
- **Native Hawaiians** of the moku of Honua‘ula and/or specifically from the Makena area
- **Cultural practitioners** of the moku of Honua‘ula and/or specifically from the Makena area
- **Long-time, nearby homeowners** from the Makena area
- **Police/fire/safety workers** in the moku of Honua‘ula (e.g., people who give traffic and parking tickets, deal with flooding/fire evacuations and lifeguard/ocean responses)
- **Service workers** within the moku of Honua‘ula (e.g., teachers, state park employees, healthcare workers, grocery store/gas station workers)
- **Tourism workers** within the area (e.g., wait and bar staff, recreational/tourism operators)
- **High school students** from South Maui
- **University of Hawai‘i—Maui college students** from the moku of Honua‘ula, South Maui and/or majoring in relevant subjects, such as natural resources management and planning
- **Subsistence practitioners** of the moku of Honua‘ula and/or specifically from the Makena area (e.g., hunters, fishers, limu gatherers, farmers, ranchers)
- **Environmental/sustainability advocates** from the moku of Honua‘ula and/or specifically from the Makena area
- **Recreational, outdoor enthusiasts** from the moku of Honua‘ula and/or specifically from the Makena area

In seeking members of these focus groups, the SIA team will be seeking people with common interests, background, and expertise. Many of these individuals would fit in several different groups given the possible “overlap” of these groups (e.g., a college student could also be an outdoor enthusiast), but a goal will be to not have any one person participate multiple times. Since the same moderator guide questions will be asked of each group, having one person in multiple groups would over-elevate that person’s opinion. The SIA team would need to determine which group of people someone who would qualify to be in many groups would resonate most with, and which group of people would create the best synergy for productive and respectful discussions together. For example, no one person should be perceived to have any more authority than the others in their group so that a power dynamic does not overtake the willingness and ability of everyone to want and be able to speak and be heard (Naggy Hesse-Biber & Leavy, 2010; Roulston, 2010). The format also will enable the local talk story process to help create a safe cultural context for people to express personal opinions and ideas, with a productive focus, while engendering trust (Rothe, J.P., 2009; Alfonso, D.D., 2007).

The SIA team will employ a multiple methods approach, including a demographic descriptive survey to be completed by participants before each focus group interview begins. To provide consistency and a harmonized dataset for analysis, the moderator questions for each focus group will be the same. Focus groups will include 5-10 people, will be conducted in person, and will be moderated by a trained qualitative methods facilitator. Questions will not be leading, and the moderator will maintain professional integrity and objectivity throughout. The questions will not repeat those from the previous online survey but will be informed by its results (Kitzinger, 1994; Naggy Hesse-Biber & Leavy, 2010).

Each session will take between 75 and 90 minutes, and the timeframes will be respectful of each group's availability. Using a design thinking, consensus building approach, after participant introductions, the facilitator will present a summary of the proposed project and those future SIA mitigations proposed in response to impacts reported via the EISPN scoping meetings and the SIA survey responses (Abookire et al, 2020; Hsieh et al, 2020). Each focus group will prioritize the issues and rank the mitigation strategies in the context of their representative group's needs for successful adaptation to and with the proposed project and the meaningfulness of the proposed mitigation's timing and effects. Happening during the Draft EIS public review, this process will foster creative and constructive brainstorming and consensus building by groups of the public who have specific connections to and knowledge of the project area, as well as would be impacted in specific ways by the project. These robust and informative discussions will provide actionable input that the applicant could directly apply within the Final EIS and SIA, as well as for and with the community.

The sessions will be audio-recorded (no video recording) with the written permission of participants, and transcribed verbatim by a professional transcription company that will delete all names to ensure confidentiality and anonymity. Transcripts will be analyzed by an expert in qualitative analysis, who will not be attending the focus group sessions, reinforcing the anonymity of the participants. That qualitative researcher will employ a thematic content analysis approach to identify common themes and differences among the groups (Vaismoradi & Snelgrove, 2019). Both deductive and inductive coding will be used. Deductive coding will allow the SIA team to identify themes anticipated based on the research for this Draft SIA. Inductive coding will allow for the identification of themes that emerge directly from the fresh data (Saldana, 2012). Demographic survey data from the focus groups will be reported using basic means and frequencies, as was collected and reported in this report.

Social impacts:

- As one of 10 luxury or resort development projects proposed in the same area, Mākena Mauka adds to a cumulative impact of a lack of trust that developers and subsequent homeowners will prioritize learning about or addressing the local community's needs, values and concerns.

Mitigations to consider:

- Enable the conducting, reporting and implementing of results from the aforementioned focus groups, as described and explained above, between the publication of the Draft EIS and the Final EIS, to inform the Final EIS.
- Continue to provide and expand regular reports and communications with the community at large about how commitments made by the applicant are being honored, to document good-faith collaborations, and to share lessons learned through community programming and engagement.

Elevate Local Culture and Community

Rebuilding a multi-generational and multi-cultural community will require the elevation of various cultural identities that are founded on island-based values. The Maui Island Plan value of respecting and protecting Maui's "heritage, traditions, and multi-cultural resources" speaks to this need (Maui County, 2012, p. 1-16). Broken social connections and community networks will require healing that is embedded in mutual respect.

Working together toward mutual long-term goals, with shared values, is a proven method for growing or regrowing shared identity. The SIA team recommends that the applicant prioritize creating spaces and projects for multi-generational and multi-cultural people to work together, learn from each other, and engage with each other and the place and resources. Opportunities for kūpuna to mentor younger generations and for ʻopio to share fresh perspectives and goals with older generations create multi-faceted bonds and learning.

At the most basic level, participants in the EISPN scoping meetings and the SIA survey expressed a feeling of a lack of inclusivity from the applicant and a loss of connection to place and lifestyle. Two sample quotes from the SIA survey that reflect this general sentiment about the proposed development follow:

> *"It will increase the socio and economic disparity, and complexion of my community. It slowly changed over the years, but as of late – it is changing more rapidly. It is no longer a whole community; it is fractured – the elite and the locals."*

> *"Makena Mauka will continue to create Maui as an incredibly wealthy and unaffordable community, especially with an increase in part time residents who do not work within the community and do not contribute in that way."*

While both the Island and Community Plans have continued to identify Makena as a resort community since the 1970s, long-term Maui families and lineal descendants of Makena have memories and histories much longer than that and are loathe to lose familial connections to the physical place and to feeling welcome there.

Community Advisory Group

Two positive, ongoing examples of networking within community has been the applicant's creation and facilitation of two community groups: the Cultural Focus Group (CFG) (to be discussed in "Prioritize Lineal Descendants of Makena and the Moku of Honuaʻula") and the Community Advisory Group (CAG) in 2013.

Applicant's positive effects:

The CAG includes representatives of neighboring landowners and residents, ranging from the head of the Wailea Association to single-family homeowners and residents. The original

membership of long-time Makena residents has expanded over the past 12 years to include newer homeowners. Aiming to be a good and communicative neighbor, the applicant updates this community about their activities and asks the CAG for their input on long-term plans and about their needs and concerns.

The CAG has appeared to be appreciative of the updates and the work done that improves their neighborhood, from the installation of sidewalks, storm drains, native plants, and seabird-safe lighting to cleaning up after storms. When these neighbors need assistance, such as if Keawala‘i Church needs additional parking for an annual event, they appear comfortable asking the applicant for help, and the applicant has a history of being collegial and helpful. This collaborative relationship among neighbors should continue.

Hawaiian Sense of Place

Nonetheless, many participants in the EISPN scoping meetings and the SIA survey spoke or wrote about a lost sense of place in the Wailea and Makena area because of ongoing development and the changed demographics. Maintaining a sense of place is a component of Hawai‘i’s environmental review policy and process that particularly focuses on the social, or human, aspect of the environment, and it is a value from the Maui Island Plan from 2012.

The State Environmental Policy emphasizes the Native Hawaiian concept that every individual may have environmental rights, but they also have an equal and individual responsibility “to protect and enhance Hawaii’s environment and reduce the drain on nonrenewable resources” (HRS Ch. 344, §3-2(D)). To implement a reciprocal community-building opportunity, the applicants can invite the community to participate in a respectful monitoring and restoration of natural and cultural resources and potential subsistence use. This participation could be through structured volunteer programming and potentially through job training or hiring.

Equally, by emphasizing that the region is not just a recreational playground, but that it has a long natural and cultural history that should be honored by those living in and visiting it, the applicant can respectfully integrate their new residents into an existing community and can assist in regrowing that community. New residents and staff should be afforded the opportunity to learn the history of the area and be provided with cultural sensitivity and respect for the indigenous peoples of the place and for other local communities that have a heritage and connection to the place. Community engagement and in-reach and outreach programs will be integral to this process. (See “Institutionalize and Expand Mākena’s Aloha Makena Foundation” and “Support the Mākena ‘Ōiwi Resources & Stewardship Department” for related mitigations.) Rebalancing the resources with community, from mauka to makai, honors the entire ahupua‘a and the moku of Honua‘ula. Furthermore, by building continuity into programming and training, the resources and community continue to flourish.

Ongoing and Proposed Community Gathering Spaces

The EISPN testifiers and SIA survey participants also sought more community spaces in Mākena in general. The provision of such spaces offers direct proof of authentic actions and commitments. (See “Build Trust.”) Some respondents praised spaces on property that are more obviously centered in a Hawaiian sense of place and values, and they expressed a desire that the

applicant openly honor those traditional Hawaiian values and the place's history. Prioritization of Hawaiian values and respect for and implementation of Makena lineal descendants' traditional knowledge could be transparently perceived by the public and ensured into the future.

Applicant's positive effects:

The applicant has committed to providing additional public access (See "Public Access") and community gathering spaces. One opportunity centers on the existing Hale Pili (See "Support the Mākena ʻŌiwi Resources & Stewardship Department.) and plans for a pavilion that will serve as a starting point to connect with Honuaʻula history and protocol before venturing further for community work, volunteering, fundraiser events, cultural education and training, etc. to be led by Mākena's Aloha Makena Foundation and ʻŌiwi Resources & Stewardship Department. (See forthcoming sections focused on these departments.) The applicant is considering additional, compatible facilities in the area of the Hale Pili that can reciprocally meet the needs of Makena area residents and lineal descendants, including the need for mutual relationship building.

Kīpaipai Community Archaeology & Stewardship Program

Applicant's positive effects:

An archaeological training program for multigenerational family and community members, Kīpaipai provides opportunities for participants who engage in the training and want to reconnect with, mālama and perpetuate significant cultural lands in the project area. The program – led by archaeologist Tanya Lee-Greig, who is a lineal descendant of Makena – is founded on a partnership among Lee-Grieg's ʻĀina Archaeology, Mākena's Aloha Makena Foundation, and the Mākena ʻŌiwi Resources & Stewardship team. Kīpaipai originated out of the 2019 Hoʻopai Archaeological Field School Training Program, and it continues to expand the place-based knowledge and experience of multi-generational lineal descendants in the appropriate care for historic and cultural sites, resources, and practices. The significant sociocultural benefits of sharing place-based, Native Hawaiian methods and disciplines within the immediate context of applied knowledge and experience revitalizes connections, skills, respect and the kuleana of giving back to the place itself (Kittinger et al., 2013).

The fragility and cultural significance of sites require different levels of protections and allow for different levels of access. Kīpaipai leadership created huakaʻi (fieldtrips) for lineal descendants to teach them about specific wahi pana (sacred spaces) in the area and how to care for them. These experiences helped give participants more confidence in their intentions and abilities, while reinforcing their connection to these places and sites. Community members can sign up online for information about and potential participation in Laulima Days (workdays) that re-establish traditional knowledge and practices. Some service projects accomplished on these days have included the many steps of building Hale Pili, replanting native species on site, and collecting oral histories of lineal descendants.

Food Sovereignty and Sharing

Makena families fondly remember community and family gatherings, usually centered around food, with ʻUlupalakua Ranch workers and mangagers, the coastal fishing communities, and

events at the Prince Hotel. Reestablishing and then perpetuating food sharing opportunities could help the applicant with integrating their members, workers and residents with the rest of the Makena community: those who still live in the region and those with heritage to it.

Food sovereignty can be addressed in a variety of ways. Food production and sharing bring people together and directly exemplify the reciprocal relationship of people with land and sea, enabling a resource and community transformation. Some methods include but are not limited to: (1) Reestablishing healthy ecosystems that provide subsistence in the form of fish, limu, hunting, farming, and ranching; (2) Farming native, endemic and canoe plants (those brought to Hawai‘i via migrating voyaging canoes) for and by local communities; and (3) Building a commercial kitchen for community use as a community gathering space, which fosters the possibilities of food sovereignty for the area, community wellness and cultural preservation. Improving the region’s ecosystems is addressed in “Preserve Natural Resources” and other mitigation topics below. Once integrated habitats are healed, the gathering of native resources for cultural use and practice and for subsistence becomes sustainable again. The traditional abundance of the area can best be reactivated through ancestral knowledge of integrated resource management.

For example, once healthy soil has been regenerated, farmed native foods can grow underground (kalo, ‘ōlena), along the ground (‘uala), on climbing vines (ipu, uhi), in bushes and low trees (kī, mai‘a, kō), and in forests (niu, ‘ulu, hala). These cultural foods and many others can be managed in traditional plots, fields or lo‘i; planted as windbreaks or landscaping; or integrated in diverse forests, depending on shade needs, irrigation options, appropriate soil accessibility, and goals of food procurement. Each of these types of farming, gardening and silviculture could be applied at Mākena Mauka. Including food forests and farms in plans for Mākena Mauka landscaping and regenerative planting proves intentional long-term investment in the land, people and culture of the place. (See additional farming information in “Support the Mākena ‘Ōiwi Resources & Stewardship Department.”) By caring for and enriching the land through traditional practices, the applicants also feed future generations through farmer training, which teaches them how to respect and grow food and knowledge. Furthermore, through providing an opportunity for community members to care for each other via meals made with ingredients grown, processed and cooked on site at a shared kitchen, the applicant has an opportunity to foster acts of service from within community that uplift and inspire that community.

Social Impacts:

- A potential impact of the applicant’s development could be the continued separation of the multi-generational and multi-cultural blend of Maui’s local community from the resort development area of Makena and Wailea.
- The proposed development could have the potential impact of losing the traditional sense of place and relationship that local people have through generations of experience and history with the Makena area by catering to temporary and parttime residents who use public resources but do not have the opportunity to become part of the larger community.

Mitigations to consider:

- Continue the existing collaborative relationship with the CAG and make best efforts to ensure that it stays mutually beneficial.
- Continue existing efforts to create community spaces and projects for multi-generational and multi-cultural Makena area residents and lineal descendants to work together, learn from each other, and engage with each other, the place, and its resources, including the possibility of a commercial kitchen for appropriate shared use with community members.
- Include, where feasible, regenerative replanting of native ecosystems and the creation of food forests, farms, and spaces that feed communities on and off the property, expanding the out-planting over the life of the project.

Mākena Mauka Draft EIS appended reports for additional analysis & information:

- Agricultural Impact Assessment
- Archaeological Literature Review & Field Inspection
- Cultural Impact Assessment
- Flora & Fauna Report
- Sustainability Report

Elevate Local Needs

Mākena Mauka's proposed development project may not appear on the surface to be intended for locals. However, many local, public needs will be met through development requirements and agreements (e.g., improvements to highways and other infrastructure, required affordable housing, impact fees for additional public parks, schools, police and fire services, etc.), many local jobs will be provided in construction and service industries, and property tax revenue will help to pay for additional public services.

Applicant's positive effects:

The Makena Change in Zoning (Maui Ordinance 3613 (2009)), for example, includes required fees for education (Condition 9: $3,000 per new dwelling unit to the Department of Education for "schools serving the Kihei Makena Community Plan area"), traffic improvements (Condition 11: $5,000 per dwelling unit to the county), and developing and maintaining a South Maui police station (Condition 43: $1,000 per market-priced unit). Among several other examples, Ordinance 3613 also requires the applicant to participate in funding of the widening of Pi'ilani Highway, fund the plan for Makena State Park, and provide additional public parking. (See "Overcrowding Prevention and Further Analysis" and "Public Access.")

However, EISPN testifiers and SIA survey participants did not see these as enough to warrant support for the development, individually or cumulatively. For example, a representative quote from an SIA survey response reads:

> *"From what I have read and understand, Mākena Mauka does not effectively address the needs of the local community. It is another example of directing*

> *limited resources to a small percentage of the population, and to intermittent residents. The project reinforces the lack of understanding shown by developers and feeds the growing divisiveness and distrust felt by the community."*

Therefore, Mākena Mauka has a chance to learn more about and address additional local needs. Upcoming focus groups will target these goals to find additional, meaningful methods of addressing them.

Non-Tourism or Service Industry Jobs

Local people seek opportunities to earn pay that provides economic equity and dignity. They do not want to be relegated to low-wage, tourism-related jobs or to feel like second-class citizens on their home island. Some EISPN testifiers and SIA survey respondents have stated that they do not only want opportunities for entry-level jobs working for and supporting the vacation lifestyles of many visitors and part time residents. A Maui Island Plan value states that planning decisions should "contribute to a sustainable and diverse economy for Maui" (Maui County, 2012, p. 1-16). Mākena Mauka can create employment opportunities, from which locals gain financial stability, feel respected, and build long-term livelihoods on the island.

By creating training opportunities for future generations of locals in natural and cultural resources stewardship, positive growth in both spheres can be integrated. Requests for leadership development and job growth and security for local people are common in Hawai‘i. This development's long-term goals and intentions for investing in the natural and cultural resources of the place provide opportunities for creating training programs and leadership steps within stewardship and management roles on-site. (See "Support the Mākena ‘Ōiwi Resources & Stewardship Department" and "Preservation of Natural Resources.")

Cultural resources will need to be cared for, protected, made available for appropriate use and access, and studied through observation and application of cultural practices. Nāulu Farm (See "Support the Mākena ‘Ōiwi Resources & Stewardship Department.") will need to be maintained, managed and evolved as conditions and needs change. All of these tasks, and many more, invite reciprocity with the place. They also require engagement with community and long-term kuleana and commitment that local people can best provide (Kittinger et al., 2013).

Education and outreach are important components of many of the proposed SIA mitigations, and those work opportunities and leadership roles should be available to local people. By elevating and sharing traditional knowledge in a reciprocal manner, as is being done through Kīpaipai and Mākena's Aloha Makena Foundation, the education and outreach can also be in-reach within the residential and working community of Mākena Mauka. (See "Institutionalize and Expand Mākena's Aloha Makena Foundation.")

Quality of Life for Local People

When they have the time to enjoy outdoor public spaces, EISPN testifiers specifically mentioned the need for open, natural view planes for stress relief. To have the mental and physical space to unwind and soak in the beauty of their home spaces would provide an invaluable affluence. The

people of Makena, Honua‘ula, South Maui and Maui in general remember a time when Makena offered a respite from the inundation of tourists and large houses. The lineal descendants and other cultural practitioners of the place seek the opportunity to practice and apply kilo within healthy, native spaces. Kilo, which applies current natural observations to an internal catalogue of such observations that is hundreds of generations old – inclusive of the information shared by the original, voyaging settlers of Hawai‘i – is an integral component of most Native Hawaiian practices. It requires a healthy environment of native species and sight lines from mauka to makai, makai to mauka, and land or water to sky.

Applicant’s positive effects:

Condition 5 of the Makena Change in Zoning Ordinance requires that the applicant “preserve Makena’s significant views of the Pacific Ocean and broad vista to the Central Maui and Upcounty region” (Maui Ordinance 3613, 2009), but it does not prescribe how or from where one should always be able to access those views, the space and the peace.

The SIA team suggests that these goals be part of natural and resource management planning and implementation, with the remaining public locations for such healing vistas and opportunities for quiet to be documented in the resource baseline studies (See “Preserve Natural Resources.”) Furthermore, any community-based management plan would include local needs in its assessment and balancing approach for management. Under such resource management plans, locals would feel welcome to enjoy Makena’s public access locations – including scenic vistas – and to participate in management service projects and place-based learning opportunities.

Social impacts:

- A possible impact of the proposed project would be continued and extended marginalization of local Maui residents, especially those with Makena and Honua‘ula ties.
- A possible impact from the proposed project could further erode local and Native Hawaiian ways of life, cultural identity, spiritual wellness and community mental health.

Mitigations to consider:

- Enable Mākena Mauka’s employment process to consider viable strategies that allow for new service and non-service industry jobs for local people that include growth and training opportunities whenever possible.
- Strive to design structures and chose colors for structures that fit and blend into the landscape to perpetuate a local appreciation of Makena’s unique natural identity.

Mākena Mauka Draft EIS appended reports for additional analysis & information:

- Agricultural Impact Assessment
- Economic and Fiscal Impact Analysis Report
- Design Guidelines
- Flora & Fauna Report
- Market Study

- Sustainability Report
- Traffic Impact Analysis Report
- View Analysis
- Water Quality and Marine Biology Assessment Report

Emergency Evacuation

Currently, only one public road allows for access and exit from Wailea and Makena. Tsunamis, severe storms, floods, fires and compounded traffic accidents may result in the need to completely reroute vehicles, divert and disperse traffic, and support emergency services' response. Several EISPN and SIA survey participants noted concern that additional populations living in Makena would add to the current difficulties addressing emergencies in the area and accelerate the need for an emergency evacuation plan.

Applicant's positive effects:

Mākena Mauka currently is participating in the creation of an inclusive community evacuation plan, which has been spurred by an escalating number of wildfires, particularly the deadly and devastating 2023 Lahaina and Kula fires, and the continuously eroding South Kīhei Road, which flooded again in early 2025. For emergencies that require immediate evacuation by and for the surrounding and visiting community members, Mākena Mauka is planning an emergency access route that provides access mauka from Makena Alanui. This alternate access could also serve area residents, workers and visitors in emergency situations when the diversion of traffic would assist emergency responders, for example. Note that other consultant reports by those who have expertise in this area include the Preliminary Engineering and Drainage Report and the Traffic Report.

To further help ensure that mass-impact emergencies are communicated in a timely fashion, the applicant has complied with their Conditions in Zoning by assisting in the provision of two emergency sirens (Maui Ordinance 3613, 2009, Condition 16). In 2017, the applicant enabled the Hawai‘i Department of Defense's installation of one of the additional sirens at the applicant's wastewater treatment plant. The second siren was installed at Makena State Park.

Additionally, signage about possible emergency situations, what sirens mean and when they are tested, and evacuation routes would be assets to local and visiting people. By having evacuation routes easily found on signs, websites and visitor materials, the applicant would be supplying invaluable safety information.

Social impact:

- Still impacted by the repercussions of the 2023 fires, and in the face of increased storms and storm intensities, the proposed development and its additional structures, vehicles and residents could add to community fears of inadequate ingress for emergency workers and egress for residents and visitors to the area in the case of a weather- or human-caused emergency.

Mitigations to consider:

- Continue to participate in collaborative discussions and formal agreements with other large landowners to provide an inclusive community evacuation plan.
- Help to ensure that the resulting evacuation route and procedures are publicized and provide clear signage for locals and visitors to help limit confusion and panic.

Mākena Mauka Draft EIS appended reports for additional analysis & information:

- Preliminary Engineering and Drainage Report
- Traffic Management Plan
- Traffic Report

Institutionalize and Expand Mākena's Aloha Makena Foundation

Some SIA survey respondents also wanted Mākena's Aloha Makena Foundation to be recognized for its current good work, and they suggested that the department should expand its engagement with, and informing of, the community within the project area (management, staff, residents, and visitors) and the community outside of the project area. As such it could continue to help guide Mākena Golf & Beach Club's management and residents in respectful and inclusive participation and collaboration with Maui, Honua'ula and Makena communities, particularly with Makena's lineal descendant community.

Collaborations with communities require sincerity, thoughtfulness, seeking mutual benefit, proof of investment in the communities' long-term values, and dependable communications and actions. Some methods for weaving sincere cultural respect and sensitivity throughout the project area include providing annual in-reach training and volunteer opportunities for those working and living on the properties. For example, one SIA survey respondent wrote that the applicant should:

> *"[e]ducate people about the culture and needs of those who already reside here. Educate that it's not an entitlement, rather a responsibility to live here."*

Integrating 'olelo Hawai'i, traditional place names and indigenous values in daily use through such practical elements as signage, presentations, meeting formalities and regular communications can help instill sincere recognition and respect for the people and history of the place.

Applicant's positive efffects:

Mākena's Aloha Makena Foundation, partnered with Mākena's 'Ōiwi Resources & Stewardship team when appropriate, assists in the design and implementation of such efforts, in direct collaboration with the lineal descendants, as represented in the Cultural Focus Group. (See "Prioritize Lineal Descendants of Makena and the Moku of Honua'ula.") Aloha Makena strives to develop intentional reciprocation – a circular giving of aloha and healing – with the natural resources of the project area, with Makena in general, and the many communities of Makena.

Support for the two Mākena departments wove throughout the SIA survey, within responses written by Hawaiians and non-Hawaiians. Some participants questioned the sustainability of the departments and the authenticity of the applicant's integration of the Hawaiian values that the departments exemplify:

> *"...programming that supports authentic connection with the natural and cultural resources – and further how to support those resources regenerating, it gets relegated to 2 small departments while onsite leadership and the larger departments do not dedicate adequate priority in resources and time for attunement to Makena and Honua'ula culture and environmental kinship."*

Ensuring that the public actively sees an integration of Hawaiian values and appreciation of the heritage and culture of Makena and Honua'ula could improve the general public's perception of the applicant's overall sincerity as a long-term community member and supporter.

Place-based Orientations

The applicant could create – in collaboration with Makena lineal descendants – and ensure implementation of orientations prior to people being on-boarded as new staff, residents, visitors, contractors, or volunteers. Such orientations would include awareness of and respect for cultural, natural, and historic resources in the area, including cultural protocol, safety instructions and relevant rules. For long-term staff and residents, regular refreshers and updates on cultural and natural resource protocols and awareness would retain prioritization of these values and make such discussion more commonplace and comfortable for both the presenters and the people learning. Making such materials and updates accessible on the internet and social media allows for different styles of learning and the ability to self-discover and educate when specifically interested.

Communications and Programming

Applicant's positive effects:

In-reach and outreach should continue to include teaching and requiring appropriate cultural protocols for access to, and providing service and maintenance projects for, culturally significant areas and sites. Protective limitations could be set and explained for particular locations. In some cases, certain places may be closed to the public to allow for group access by people with specific skills and connections to those places. As the community helps to improve the habitats and ecosystems of the area, they learn about those resources' connectivity with each other and with humans. Intentionally building community members' understanding and appreciation for these resources through service actions makes the activities and the place more meaningful to participants, no matter where they are from originally (Kittinger et al., 2013).

Programming should continue to include school accesses and cultural learning opportunities that incorporate service and stewardship labor at the correct level of understanding, skill level and respect for the activity or process. Respect for place-based traditions, values and wisdom

enriches the quality of natural and cultural resource perpetuation by adding to more recent, western scientific expertise and by building the capacity and shared commitment of relevant communities. ʻĀina-based education and stewardship opportunities founded on traditional knowledge help to reclaim lineal descendants' holistic identity, revitalize the place-based Hawaiian culture, regenerate community, and renew kuleana, while taking advantage of Mākena's inspiring outdoor classrooms.

Equally, regular updates on progress in regenerative resource work, cultural programming and appropriate opportunities for involvement should continue to be offered to members of the applicant's community and the local community. The applicant will need to maintain these elements of community building, maintenance and understanding, inclusive of the Hawaiian worldview of the familial connections of people to place and the historic and natural elements of that place. The reciprocal relationships of interwoven communities build a holistic sense of well-being and belonging that provides support and stability in times of crisis and of shared joy. The SIA team further suggests that the applicant continue to develop and support Aloha Makena programs that engender community good will and exemplify Native Hawaiian cultural values, publicizing them internally to the applicant's staff and residents and to surrounding communities. The following examples of existing Mākena programs should be continued and could be expanded.

Aloha Mākena Endowed Scholarship at the University of Hawaiʻi

Applicant's positive effects:

Aloha Mākena, the 501(c)(3) nonprofit for Mākena Golf & Beach Club with a vision of a continuum of aloha and reciprocity, helps provide for on-site community events, multi-generational training programs, and scholarships. Since 2018, the Aloha Mākena Endowed Scholarship Fund has provided a perpetual investment in the Makena community. Scholarships for students seeking an undergraduate certificate or degree on any University of Hawaiʻi (UH) campus are available annually. Preference is given to applicants who have genealogical ties to Makena or are Mākena Golf & Beach Club employees or their immediate family members. As of this writing, eight scholarships have been granted, and grantees have been able to use the funds for classes, books and other costs directly connected to attendance at UH.

Community Events

Applicant's positive effects:

Mākena's Aloha Makena Foundation regularly organizes and hosts fundraiser events for community collaborators that provide essential services to Maui, while sharing the values of aloha, working together, and treating each other as family. To benefit these organizations and shared goals, Mākena hosts fundraiser events, annual golf tournaments and other programs. Select examples include:

- I Ola Kanaloa – In December 2024, Mākena hosted a farm dinner at Nāulu Farm to fundraise for two Kanaloa Kahoʻolawe preservation and perpetuation organizations: Protect Kahoʻolawe ʻOhana and the Kahaoʻolawe Island Reserve Commission. The event was located at the farm that was named for the cloud bridge that used to form

regularly from Ulupalakua to Kahoʻolawe and that overlooks the ʻAlalākeiki Channel that connects Makena's shoreline to Kahoʻolawe.

- Ulu Mai he Wai – This farm dinner held in November 2024, also at Nāulu Farm, supported watershed awareness and management by providing a fundraiser for three collaborative organizations that seek to expand and improve native ecosystems, watersheds, and clean freshwater on Maui. The three organizations – Uhiwai o Haleakalā, Kula Community Watershed, and Mauna Kahālāwai Watershed Partnership – were the sole financial beneficiaries of the evening. All attendees were treated to the beautiful views from Puʻu ʻŌlai to Kahoʻolawe, the setting of Nāulu Farm, and the opportunity to network with like-minded people seeking to return rain, clean water and environmental health and well-being to Maui.
- ʻOhana o Honuaʻula – For the past two years, Mākena has hosted a community dinner to celebrate the up-country families of ʻUlupalakua Ranch and the shoreline families of Makena. Similar parties used to occur regularly at Makena Landing and had been missed by these families of shared ahupuaʻa and history. By hosting these reunions, Mākena continues the important generational links of people to place and to each other in an effort to rebuild mutual support in environmental and cultural endeavors.
- Annual Pickleball Tournament – Raises funds for the Boys and Girls Club of Maui.
- Annual Golf Tournaments – Include, but are not limited to, the following:
    - The Maui Interscholastic League (MIL) Golf Tournament
    - Nā Hale o Maui Annual Golf Tournament (in support of the named organization, which seeks to provide perpetual affordable housing for Maui)
    - A golf tournament in support of the Hawaiʻi Land Trust, which works to protect the ʻāina of Hawaiʻi in perpetuity and to teach future generations the multiple skills needed to continue that work
    - A charity golf tournament for three organizations that protect Maui's forests and native birds: Uhiwai o Haleakalā, Maui Forest Bird Recovery Project, and Maui Nui Seabird Recovery Project
    - An annual golf tournament in support of Keawalaʻi Church's Outreach Fund, which in turn supports Maui community members in need
    - The annual V Foundation tournament, which is a fundraising event for that organization's fight against cancer

Donations to the Community

Applicant's positive effects:

Providing financial support for a decade, the applicant (Mākena Golf & Beach Club) has donated more than $600,000 to Maui organizations, investing in their community. Some of these organizations address such basic community needs as health, food security and affordable housing. Other grantee organizations support environmental health through resource conservation and stewardship, protecting native natural resources, and educating the youth and broader community.

These nonprofits target issues and locations in Makena, Honuaʻula, South Maui and Maui Nui. The nonprofit beneficiaries include but are not limited to the Protect Kahoʻolawe ʻOhana, Maui Health, Imua Family Services, Hale Makua Health Services, Grow Some Good, Hui O Waʻa

Kaulua, Maui Arts & Cultural Center, Maui Food Bank, Maui Behavioral Health Resources, Leeward Haleakalā Watershed Restoration Partnership, Holani Hana, Book Trust, Ala Kukui, Hawai'i Nature Center, Ka Hale A Ke Ola, Maui Rapid Response, Maui Nui Seabird Recovery Project, Maui Forest Bird Recovery Project, Uhiwai O Haleakalā, Nā Hale O Maui, and Keawala'i Church.

Mākena Golf & Beach Club members have personally contributed nearly $20 million to Maui Health in recent years, enabling access to critical life-saving equipment, creating new service centers, and supporting programs that recruit, house, and care for healthcare professionals serving the Maui community.

Holo 'Ai

Applicant's positive effects:

As of May 2025, Mākena had contributed more than 25,000 pounds of food to the Maui-based community food-sharing program Holo 'Ai. Maui Nui Venison began the program during the COVID-19 pandemic as a proactive response to food instability in Maui. The program expanded again in response to the Maui wildfires of August 2023, and food distribution coolers and sites are mapped and calendared reliably. By sharing the lean protein of invasive deer, Maui Nui, its food preparation, distribution partners, and supporters, like Mākena Golf & Beach Club, have helped to build community resilience while striving to rebalance the island's ecosystem. As of April 2025, Holo 'Ai had donated more than 194,000 pounds of venison to Maui families.

Social impacts:

- A possible impact of the proposed development would be a continuation of a historical lack of meaningful community involvement by development projects that have often excluded or ignored local voices, especially Native Hawaiian lineal descendants from culturally significant areas like Makena.
- A possible impact by the applicant could be what have become expected superficial gestures toward cultural inclusion from other developers, which can feel disrespectful or performative if not backed by genuine commitment.

Mitigations to consider:

- Integrate Hawaiian language, traditional place names and indigenous values as much as possible through Mākena Golf & Beach Club signage, presentations, meeting formalities and regular communications, with input from Makena lineal descendants.
- Continue to support the capacity and efficacy of Mākena's Aloha Makena Foundation.
- Create and ensure the implementation of educational orientations that include cultural sensitivity and respect prior to people being on-boarded as new staff, residents, visitors, contractors or volunteers, offering regular refreshers and updates for long-term employees and residents about cultural and natural resources, Hawaiian history, and cultural protocols and awareness.
- Provide regular updates on progress in regenerative resource work and cultural programming via community in-reach and outreach, including the internet and social media.

Mākena Mauka Draft EIS appended reports for additional analysis & information:

- Archaeological Literature Review & Field Inspection
- Cultural Impact Assessment
- Sustainability Report

Overcrowding Prevention and Further Analysis

General concerns expressed during the EISPN scoping meetings and via the SIA survey responses included people not wanting this area to be overcrowded or overdeveloped, and they did not want it to lose its identity. This concept wove through a variety of sub-topics, which are batched below to address issues raised by the public from a social perspective and to provide information about the applicant's current commitments and actions in relation to each.

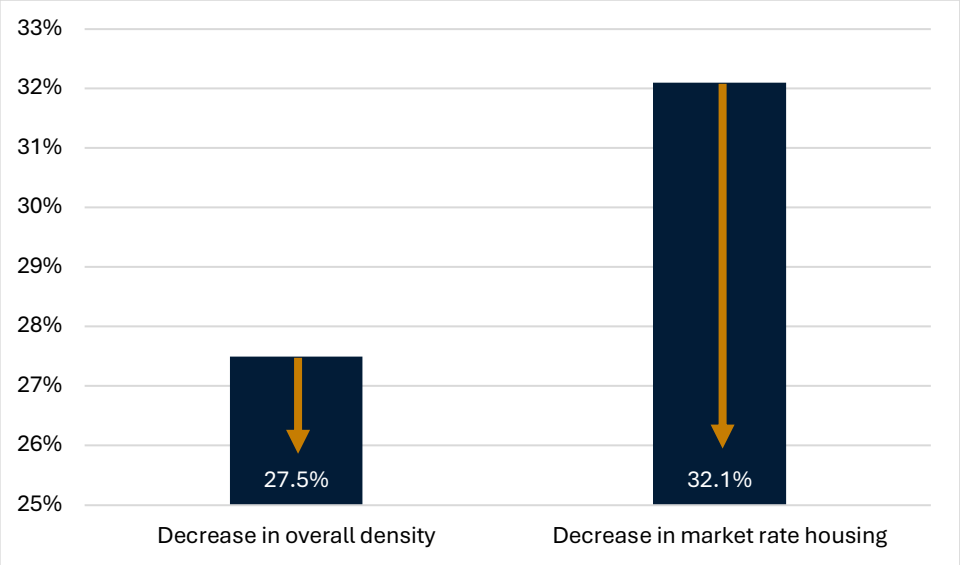
Reduction in Development Density

Directly assisting in the mitigation of cumulative development density impacts in the Honua'ula moku are Conditions 1 through 4 of the applicant's Conditions in Zoning (Maui Ordinance 3613, 2009). These conditions specify maximum density levels within each district zoned area. The densities proposed in the current project are less than or equal to the densities established in these conditions.

Applicant's positive effects:

In response to consistently hearing from the public in the EISPN scoping meetings that they did not want the Makena area to be overdeveloped, the applicant reduced the number of units they are proposing to develop. In a 27.5% reduction of density, they dropped the proposed number of units listed in the EISPN from 900 to 652. They also are proposing to add to the originally proposed 100 on-site workforce housing units, now offering 109. This represents an increase from 15% to 17% out of the total number of units. Therefore, they propose to develop 543 market-rate units instead of the originally proposed 800. This results in a 32.1% decrease in market-rate units. Figure 24 visually depicts this decrease in impacts, via the drop in density overall and specifically in the number of market-rate units.

Figure 24. Housing density decrease



Below, Figure 25 further illustrates the specific changes in on-site housing units being offered by the applicant for the development of Mākena Mauka.

Figure 25. Dwelling unit changes



Traffic

EISPN testifiers and SIA survey respondents pointed to chronic traffic issues that the Maui community foresees being exacerbated by additional developments in the area.

Applicant's positive effects:

Some of the mitigations to which the applicant has already committed are found in its Change in Zoning ordinance. They include the payment of a traffic impact fee of $5,000 per dwelling unit to the county for general traffic improvements (Id., Condition 11), as well as paying a pro-rata share – with other large developments in the area – to upgrade Pi'ilani Highway to four lanes of traffic from Kilohana Drive to Wailea Ike Drive (Id., Condition 12). As part of a required Transportation Management Plan to reduce construction-generated traffic, the applicant must provide for park-and-ride programs, shuttles for workers, and alternate work schedules (Id., Conditions 14 and 15).

Parking

Adequate parking for beach area shuttles and for direct access for specific public access locations and groups of people will limit vehicle congestion in a fragile and significant area.

Applicant's positive effects:

The applicant has already added public parking along the redeveloped Hono'iki Road and has committed to adding another 65 public parking spaces within the Mākena Mauka project area. These spaces will help to eliminate dangerous parking along Makena Alanui Road and within neighborhoods, reduce the volume of vehicles seeking parking, and therefore reduce evacuation needs during an emergency. (See "Public Access" and "Emergency Evacuation.")

Beaches

Participants in the EISPN scoping meetings and the SIA survey expressed consistent concern about overcrowding at beaches in the Makena area that already made them feel unwelcome and uncomfortable, and that they feared would be exacerbated by more development near those beaches. Two sample quotes from the SIA survey responses read:

> *"[O]ur beaches are overrun with people, there's not enough space for everyone, I can't fish without people getting in my way..."*

> *"Makena Landing is already over-run by tourists and commercial operations – pushing locals out."*

Because of these perceptions and concerns, the applicant contracted a study to empirically show who is using South Maui beaches throughout the course of the day, and of those people, how many originate from housing that is similar to what Mākena Mauka is proposing to develop. Based on that data, the same consultant then estimated the projected impact of an additional 543

residential, market-rate units that would likely only be occupied part of the year, and 109 workforce housing units that likely would be lived in year-round. The study was provided to the SIA team at our request to analyze the results in the context of concerns heard from the public. (See Appendix D: Visitor Trends at Mākena and Wailea Beaches Using Azira Data, 2025, Memorandum by Fehr & Peers.)

The study includes human movement data collected from location-based applications and services on smartphones and other mobile devices between January 2019 and June 2024. (Note: The analysts ran the study with and without the year 2020, which could portray data anomalies because of COVID-19 travel and movement restrictions, but no statistical difference was noted, whether data from 2020 was included or not.) Fehr & Peers was able to sort the data to note where the smart devices spent the night and when they were at one of 18 South Maui beaches for at least 15 minutes, which would register as one beach visit. The 18 beaches begin in the north at Kama‘ole Beach Park I and end in the south at Makena State Park. (See Appendix D, Figure 1, p. 3 for a map of the beaches studied, and the source points of people staying at Mākena Golf & Beach Club’s residential units, other Makena part-time or full-time residential units, Wailea part-time or full-time occupied residential units, Wailea short-term vacation resort or hotel areas, and Wailea hotels/resorts.)

Existing Mākena Golf & Beach Club residents and guests represented just 0.19% of all visitors to these beaches. The most popular beach for this population is Maluaka – closest to these existing residences – and there, Mākena Golf & Beach Club residents represented 3.92% of the visitors. More than 48% of Maluaka Beach’s visitors were Maui residents (not including Mākena Golf & Beach Club), and 48% were non-Maui residents (Appendix D, Table 1, p. 4).

The next most frequented beaches by Mākena Golf & Beach Club residents and visitors were Oneuli Beach, of which they were 1.11% of the beach visitors; Makena Landing, where they represented 0.42% of the visitors; and Makena State Park Beach, where they made up 0.15% of the visitors (Ibid.). This lack of beach participation may be because those residents and visitors instead are availing themselves of the private, on-property amenities (golf, gyms, spas, tennis and pickleball courts, restaurants, etc.). The same would likely be true for Mākena Mauka residents, given their access to the same and improved on-site amenities. Fehr & Peers sought to examine that theory using their data.

To evaluate the potential additional impact that Mākena Mauka’s proposed 652 new homes may have on these same beaches, Fehr & Peers used the number of average Makena part-time/full-time residential beach visit samples in 2023 (the last complete year of data), data from similar residential types from Wailea, and analyzed traffic volumes in the Makena and Wailea area. Fehr & Peers calculated that the new residences at Mākena Mauka would add a total of approximately 32 beach visits per day to the area, with 15 from the mostly part-time market-rate unit residents and 17 from full-time, local workforce housing residents (Appendix D, Table 3, p. 11). Fehr & Peers forecasts that the impact of both types of Mākena Mauka’s additional housing units – market-rate and workforce – would have a “negligible impact on visitation at the 18 study beaches” (Appendix D, pp. 40-41).

Another issue noted at the EISPN public scoping meetings and in the SIA survey was a discomfort among locals at visiting beaches in the Makena and Wailea area because they did not feel welcome. According to the data, the beaches in the study that attracted the most Maui residents from outside of Makena and Wailea were Oneuli (61.46%), Makena Landing (52.82%), North Po'olenalena (48.06%), Makena State Park (46.97%) and Palauea (52.74%) beaches. (See Appendix D, Table 1, p. 4.) From Palauea Beach south to Makena Beach, most beach visitors were Maui residents from outside of Makena and Wailea, with the exception of Ka'awa Beach, where most beach visits are evenly split between Maui residents in general and part-time residents and guests from the Makena area (not including Mākena Golf & Beach Club). In contrast, when all the part-time and full-time residents and guests in the Makena area are combined, they encompass a total of 2.17% of all visitors to the 18 South Maui beaches studied. (Ibid.) Thus, the testifiers' and survey respondents' perceptions and concerns do not appear to be accurate for beaches in the Makena area.

The intensity of concern about, and the perception of, overcrowding at beaches in Makena in general and by nonlocals in particular could warrant a sustainable use study and plan for specific beaches in the relevant area for which the applicant has maintenance responsibilities: Makena Landing, North Maluaka and South Maluaka (Maui Ordinance 3613, 2009, Condition 36). Sustainable use studies collect baseline information to examine whether there are ongoing conflicting uses, whether existing infrastructure meets current needs, if public safety resources are adequate, and how localized natural and cultural resources are protected. They are objective studies that enable specific plans to for balanced management of people and resources. Such a study would apply what has been learned from the Fehr & Peers study about the estimated number of people on nearby beaches, and the origins of those people. That information would help determine the sufficiency of the current infrastructure, such as parking and public lighting, informational signage, trash bins and their emptying, bathrooms and showers and their maintenance, picnic tables and grills, lifeguards and lifesaving devices, security, and opportunities of access for people of various abilities. The study also would analyze current and conflicting uses, creating a social assessment of types of users and their respective needs for space to rest, kilo, recreate, and subsistence gather and fish.

Social impact:

- Additional, cumulative development of the Makena and Wailea area increases the likelihood of conflicting uses of public infrastructure and of non-renewable resources among local people and new residents and visitors.

Mitigations to consider:

- Conduct sustainable use studies for the beach areas of Makena Landing, North Maluaka and South Maluaka, and share the analysis and results publicly.

Mākena Mauka Draft EIS appended reports for additional analysis & information:

- Design Guidelines
- Market Study

- Noise Assessment Report
- Preliminary Engineering and Drainage Report
- Traffic Report
- View Analysis
- Visitor Trends at Mākena and Wailea Beaches Using Azira Data (Appendix D to this Draft SIA)

Preserve Natural Resources

Testifiers and survey participants spoke and wrote about the need to revitalize and preserve native natural resources within the project area and other, surrounding properties in Makena, rebuilding the safety net of native species biodiversity. Protecting and enhancing that biodiversity requires an investment in knowledge and in committed, long-term action. People can be an important part of the biodiversity that enables resiliency in and with nature. Because native natural resources are cultural resources, the SIA team recommends that this work incorporate the traditional knowledge and stewardship practices of local lineal descendants and other kūpuna. Community outreach about the revitalization of the native ecosystems must include recognition of their cultural significance.

The survival of Native Hawaiians' ancestors while exploring and populating the largest ocean on the planet depended on the accuracy of their perception and on their ability to remember and teach over thousands of years. Newer scientific baselines are much more recent and are often sourced from observations distanced or isolated from nature, rather than as part of it. Responsible resource managers striving to adapt to escalating changes on the planet are learning to recognize and appreciate place-based traditional knowledge, which is born of being embedded within and as part of nature (Robbins, 2018). Indigenous peoples' records of ecosystems and habitats that have changed regularly over their culture's evolution enable them to recognize when to adapt with their environment. Native Hawaiians' success with resiliency over generations gives them confidence to recognize what is in front of them, and to evolve with the resources to which they have a genealogical relationship. They must survive together.

More broadly, cultural ecosystem work in the Makena area also could include community-based management to ensure that a balance of broader community concerns and needs are met. Including community members who care about the place and its resources with the management process helps to ensure the longevity of any resource management plan, examples of which follow. Such preservation goals meet another Maui Island Plan value of adopting "responsible stewardship principles by applying sound natural resource management practices (Maui County, 2012, p. 1-16)."

Dryland Forests

Applicant's positive effects:

As noted in the Mākena ʻŌiwi Resources & Stewardship section, the Mākena Golf & Beach Club team has begun to focus on the ecosystem of the lower Honuaʻula dryland forest.

Restoring this once biologically diverse ecosystem would help to recharge aquifers, renew the renowned water cycles from Haleakalā to Kahoʻolawe, set the ecological foundation for habitat connectivity, and enable the return of native species on the land and in the sea. This example of reciprocity – caring for the land that cares for the people – remains a kuleana for the people of the place and an opportunity for others to learn and assist in that work, thereby also rebuilding community and restoring balance with the natural environment. Investing the time, care and resources in such a restoration project would regenerate ecosystem function, reconnect people to place, and build an overall better quality of life for people living and working in and around Mākena Mauka.

The leeward dryland forests of Haleakalā's lower slopes were expansive, and regenerating them provides an opportunity for comprehensive work, with enough land, resources and time (generational) provided to that work. As noted below in "Public Access: Additional Park and Conservation Lands", lands will be set aside in perpetual conservation areas, and the applicant has committed to restoration of the dryland forest lands. Meanwhile, much of the undeveloped portions of the project area can incorporate the lowland dry forest ecosystem. The effects of that system's regeneration will spread through various other species, habitats, and ecosystems, rebuilding the resilience of biodiversity (Natural Area Reserve Systems, 2012, p. 10).

The regenerative work will require invasive species removal of non-native plants and ungulates, rebuilding healthy soils, attracting and holding moisture, and reseeding and nurturing native plants that will attract other native species such as pollinating insects and birds. Another important component of this work is the reconnection to traditional knowledge gleaned by observation and experience. Any archeological and cultural sites within the ecosystem provide additional reserves of information that can help locate appropriate planting areas and seasons, for example. To that end, when possible, the applicant should restore and reuse ancient loʻi, mala and ʻauwai. Investing in this future-focused work will require seed banks, nurseries, access to ongoing experiential and classroom learning, on-the-job training programs and volunteer service opportunities. (See "Elevate Local Needs.") Restoration projects can help build local capacity and a skilled workforce, strengthen relationships among community organizations and individuals, spur local businesses, build a shared responsibility for the environment, and lead to enduring social and environmental improvements (Kittinger et al., 2013).

Natural Resources Baseline Studies and Monitoring

Ahupuaʻa-wide native regeneration would need to include the integration of lineal descendants' traditional knowledge and experience, other scientific expertise, natural and cultural resources, traditional practices, and community from mauka to makai. For example, historic sites have been trampled and damaged by ungulates and humans over the years. By removing invasive species, both natural and cultural resources can be restored and maintained. By involving lineal descendants of the place, the opportunity to relearn and teach about these sites will help inform proper management, inspire more interrelated resource management collaborations, and preserve ancestral knowledge. Equally, native plant species will need to be reincorporated as the various environments-of-place dictate. As an example, native coastal plants will need to be part of landscaping and regeneration on properties along the coastline. This also will include project area lands in support of any community-based management areas along the coastline. Furthermore, soil erosion control helps the forest regenerative process by keeping healthy soil in

place to nurture native plants, channeling waterflow to ensure irrigation gets to the right plants or filters to the aquifer and ensuring that too much sediment does not flow into the sea and onto reefs. (See "Water Resources.")

Baseline studies of natural resources within and near the project area could be done so that regular qualitative studies and sampling can be conducted as part of stewardship of the integrated ecosystems. Annual or seasonal resource surveys and sampling will build a useful record and tool for current and future stewards of the mauka and makai resources. They will alert stewards about any positive and negative changes in the respective environment that can enable them to respond accordingly. Monitoring and documentation can be supported by community volunteers and can be used as staffed education and outreach opportunities, perhaps inspiring other large landholders and community members. Benefits of community involvement in this process include enhanced community capacity for environmental stewardship, greater awareness of the status of the surrounding environment and the local ability to improve it, increased understanding of the history and heritage of the area, and a heightened collective sense of kuleana to work together to improve and maintain the resources. (See "Elevate Local Culture and Community.")

Resource studies could include, but not be limited to, that of natural freshwater systems, marine and coastal areas, dryland forests, water conservation and use, and cultural access and perpetuation. These studies would provide for living documents that help to train and inform resource stewards, and to provide for education and outreach opportunities for and with community members. Once all of the baseline studies of natural resources and applicable public services have been analyzed and prioritized, action plans could be created and implemented. Leading with lineal descendants of Makena, traditional knowledge and local needs in this process would be integral for success.

Applicant's positive effects:

Some of this work has already begun through the applicant's compliance with Condition 19 of the County's Conditions in Zoning for the applicant (Maui Ordinance 3613, 2009). This condition already requires a specific resource sampling and monitoring program for coastal waters, with which the applicant maintains compliance. Quarterly sampling and reporting document the status of nearshore waters that are impacted by ground and surface water flow from upcountry, including from the project area. The reports help build a record for internal resource managers as well as for the Hawai‘i Departments of Health and of Land and Natural Resources, with which the applicant must file the reports.

Furthermore, Condition 38 (Id.) requires a baseline study of flora and fauna for each Shoreline Management Area (SMA) permit application, to list "all endemic, indigenous, and endangered species and their distribution" within the project area and shorelines along its makai boundary. Such a baseline study was produced of the applicant's coastal lands and provided to the County in 2010, and the applicant has prepared a new study for this EIS.

The Mākena Mauka project applicant already intends to set aside 30.368 acres as Dryland Forest, apply to change the zoning to Open Space, and include that land in a conservation easement. This area is included in Figure 26 and represents the location of the dryland forest management area described above.

The applicant also intends to place at least 100 acres – identified by archaeologists and flora and fauna consultants – for archaeology and native species (wiliwili) protection in a conservation easement. That area is labeled on Figure 26 as the Wiliwili Conservation Easement. It abuts the Mākena Mauka project area and is part of the Makena Resort U-1 project that is listed in Table 9: Cumulative Impacts.

Social impacts:

- Potential impacts of developing on and near the significant natural and cultural resources of Makena could be generational in the lost opportunities to practice and expand traditional ecological management skills.

Mitigations to consider:

- Evaluate the potential for a plan to regenerate and restore a leeward dryland forest ecosystem within Mākena Mauka, including traditional cultural knowledge and methods in the process.
- Establish and implement a strategy for conducting baseline and recuring surveys of natural resources within and near the project area in collaboration with local community members, including Makena lineal descendants.
- Continue conserving substantive lands for the perpetual preservation of natural and cultural resources similar to the conservation areas already identified.

Mākena Mauka Draft EIS appended reports for additional analysis & information:

- Air Quality Assessment Report
- Archaeological Literature Review & Field Inspection
- Design Guidelines
- Flora and Fauna Survey
- Groundwater resources Impact Assessment Report
- Preliminary Engineering and Drainage Report
- Sustainability Report
- View Analysis
- Water Quality and Marine Biology Assessment Report

Prioritize Lineal Descendants of Makena and the Moku of Honua‘ula

Prioritizing Native Hawaiian culture and knowledge requires learning about it and applying it, respectfully and with permission. Traditional cultural knowledge is not static; it is acquired through immersive observation, experience, and practice over time. It includes a symbiotic relationship with the environment, multi-generational members of a community, and spiritual connections (Kanehe, 2015, p. 1022). Not only is recognizing traditional and cultural access and practice part of the Hawai‘i Constitution, it also is a respectful start to seeking leadership for management of Hawai‘i’s resources.

The project area includes several significant historic, burial, and spiritual sites, which affirm that the area once supported large numbers of Native Hawaiians through successful ahupua‘a management and shared, respectful, and reciprocal actions. Those families whose long line of ancestors inhabited and cared for this place continue to advocate for its protection and care today. They know that every resource is connected and that every natural resource is a cultural resource to which they have familial kuleana.

A common refrain among respondents to the SIA Survey was to prioritize lineal descendants of the Makena area and the Honua‘ula moku. Testifiers at the EISPN scoping meetings stated that lineal descendants no longer feel welcome in the area and advocated that genealogical connections to the land should be more valued than monetary connections to the land. In both forums, requests for access to generational lands were heard, as well as the importance of sustaining a stewardship connection to the place that can only help with resources management. Descendants of people who evolved with this specific place have intrinsic stewardship knowledge, earned through the generational experiences of myriad environmental and human changes. On a more spiritual level, their traditional cultural and religious practices elevate connection to the place and knowledge and respect for the place and for them.

Applicant’s positive effects:

The Mākena Mauka team currently facilitates and engages with a Cultural Focus Group (CFG) that includes lineal descendants of the area. Founded in 2013, the CFG ensures that family representatives bring generational knowledge that can be used to collaborate with on-the-ground land stewards and leadership. By integrating and honoring the interconnected knowledge of each of the nine ahupua‘a – extending into the sea – that are included in the project area, property managers and eventual homeowners can only benefit. This group, their knowledge and advice, should not be seen merely as a group to schedule, consult and keep apprised, but should be respected and elevated as leaders in resource management. The CFG should be valued partners in honoring the place that their ancestors learned how to care for in a manner that enabled them and the resources to thrive.

The SIA team recommends co-creating and executing a formal, adaptive agreement with the CFG to document and prove a continuous intention to work together for shared goals. (See “Build Trust.”) The applicant’s leadership and staff will change over time, as will leadership and membership of the CFG. Taking the time to work through a long-term agreement enables future creativity and provides the benefits of alerting both parties to issues that need to be addressed to build trust in the current and long-term relationship. The collaboration required to work through those issues builds a foundation for avoiding and mediating future disagreements (The Nature Conservancy, Hawai‘i Marine Program, 2017). Creating, implementing, and appropriately adapting such an agreement and relationship emphasizes the importance of the relationship and “of clarity, inclusiveness and true collaboration” (Id., at 13).

Respect for the people and resources of the place should be ubiquitous throughout the property and should be the foundation upon which future homeowners build and live their lives while on the property. Collaboration with the CFG and their families can best ensure that their values lead the discussions and birth the methods for regenerating and then maintaining native resources,

honoring the history of people and place, and respecting that their culture is alive, continuing to evolve and remaining invaluable to the future of Maui. Because people are integral components to ecosystems in Hawai‘i, everyone who lives and works in this space should be privileged with – and given the opportunity to honor – the history, values and restorative practices of lineal descendants of the area.

Both the environment and Makena families desire the return of the ancestral quiet of Makena. Both deserve to feel respected and welcome, and both require space and time for regular rest and restoration, together. With that peace comes a reverence for the natural and cultural spaces, and the ability to care for them and each other. Multi-generational spaces that encourage the transfer of information and practices, storytelling, and speaking in ‘olelo Hawai‘i become Hawaiian spaces again that are protected and nurtured (PBR Hawaii & Associates, 2018). Once the people, native plants, freshwater springs, limu and other marine resources have been welcomed home, then the place can once again feed the lineal descendants, spiritually and physically.

Social impacts:

- Additional development in the Makena area could further limit the local community’s access to respectful and accurate opportunities to learn about Native Hawaiian history, living practices, placenames, etc. from the lineal descendants of the place.
- The proposed development could, even unintentionally, limit access to the lineal descendants of Makena, for whom the place is a generational, cultural home.

Mitigations to consider:

- Actively examine the opportunity to co-create and execute a formal, adaptive agreement with the CFG to document and prove a continuous intention to work together for shared goals.
- Develop a plan to designate perpetual access to and use of cultural areas and resources for Makena lineal descendants.
- Create spaces where descendants of the area and people with a genealogical relationship to the place are comfortable living, practicing and learning their culture.

Mākena Mauka Draft EIS appended reports for additional analysis & information:

- Archaeological Literature Review & Field Inspection
- Cultural Impact Assessment
- Sustainability Report
- View Analysis

Public Access

Requests for facilitating public access onto and near the project area consistently wove through EISPN scoping testimonies and SIA survey responses. Participants variously requested access and sometimes gathering rights for subsistence, cultural practice and recreation. Next steps and on-going work by the applicant should continue to encourage local community members and

residents to return comfortably to the area. Such encouragement should be informed by community outreach about, and controls that protect, the area's natural and cultural resources. (See "Preserve Natural Resources" and "Overcrowding Prevention and Further Analysis.")

Public Trails

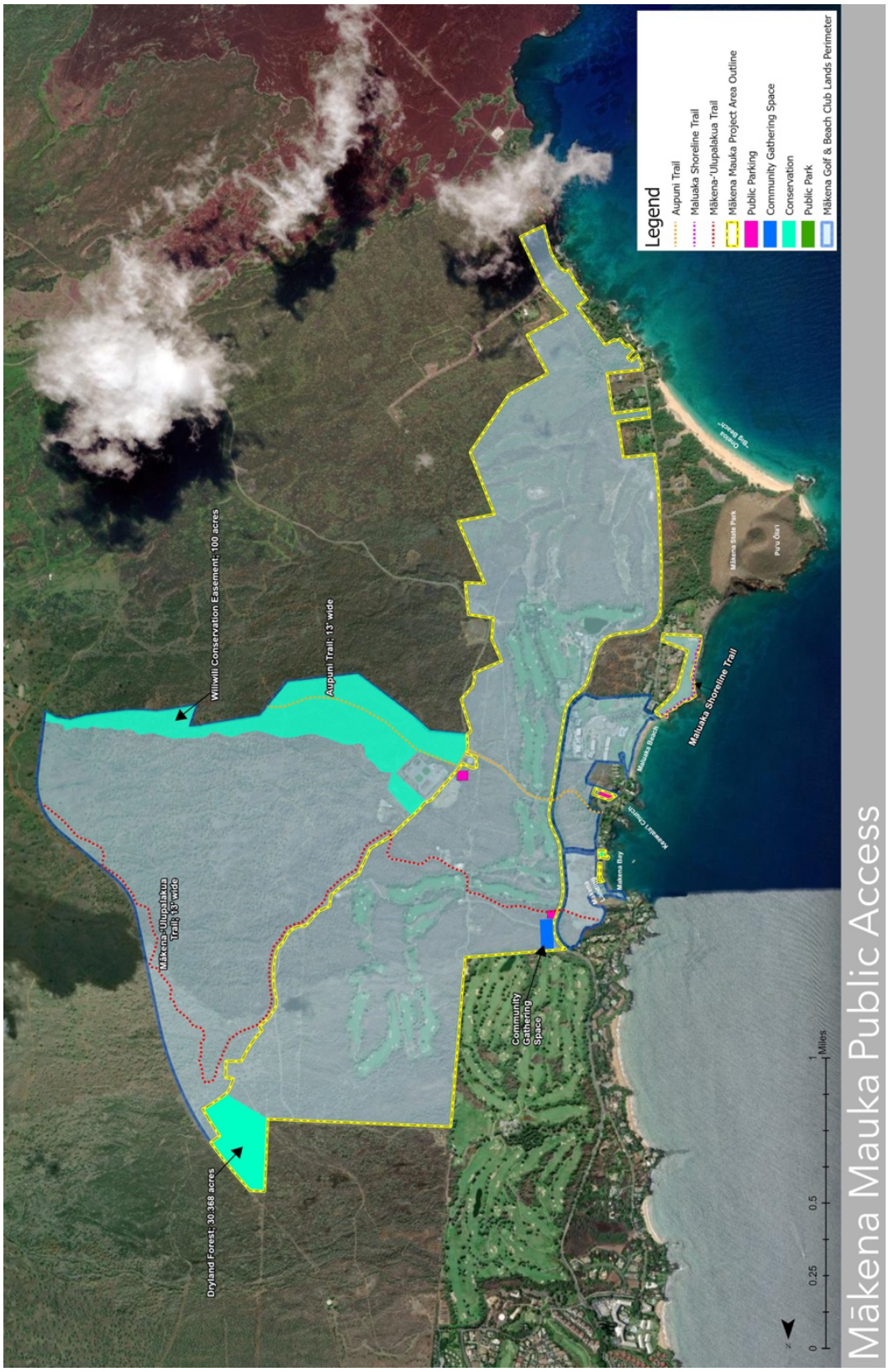
Public testifiers in the EIS scoping process and participants in the SIA survey requested ensured access for cultural purposes and for the public to the natural beauty and resources of Makena, mauka and makai.

Applicant's positive effects:

Each of the following public trails have been committed to by the applicant and can be found in Figure 26:

- The County requested that the applicant provide and maintain a perpetual, public shoreline trail "between the shoreline boundary and the mauka boundary" of their property (Maui Ordinance 3613, 2009, Condition 33). In 2015, the applicant cleared and restored approximately 1,600 lineal feet (equal to approximately 490 meters or a third of a mile) of the Maluaka Shoreline Trail, which runs between Maluaka Beach Park and Oneuli Beach. The applicant has committed to relocating the shoreline trail inland, where possible, in the face of sea level rise, which has not yet impacted the trail.
- The applicant has committed that Mākena-ʻUlupalakua Trail will be 13-feet wide, including a total of five feet of buffers, and will be placed into a reputable land trust for future management.
- The applicant has further committed that the shorter Aupuni Trail also will be 13-feet wide, inclusive of a total of five feet of landscape buffer.
- To help address such EISPN scoping and SIA survey issues as consulting with lineal descendants, the SIA team urges the applicant to ensure that any signage related to these trails incorporates the traditional names of the place and shares information that the lineal descendants of the place help to provide and to check for accuracy.
- To further help address the public calls for preserving natural resources, the SIA team urges the applicant to work toward removing invasive plant species along the trails and buffering the trails with native plants to help prevent human foot traffic from causing further spread of invasives.

Figure 26. Public access map



Public Beaches

Applicant's positive effects:

In 2013, four years after the approval of the applicant's Conditions in Zoning, the applicant had funded the required plan for development of Makena State Park and had submitted the plan to Hawai'i's DLNR and Maui's Department of Parks and Recreation (Maui Ordinance 3613, 2009, Condition 34). The plan included analysis of possible recreational uses, public parking and facilities, and landscaping strategies.

More expansively, Condition 36 (Id.) requires the applicant – "for the life of the project" – to maintain all of the following beach park areas: Makena Landing, North Maluaka and South Maluaka. These are the beaches referenced for carrying capacity studies in "Overcrowding Prevention and Future Analysis" and in "Preserve Natural Resources". Also, as noted in the "Additional Park and Conservation Lands" subsection below and on Figure 26, the applicant not only is maintaining these areas, but also adding to public access, parking and lands around all of these beaches.

Alternative Access Methods (Bicycle and Pedestrian)

As noted in the Maui Island Plan, one of the island's values is to "[e]stablish a sustainable transportation system that includes multiple modes, including walking, biking, and mass transit, as well as automobile-based modes" (Maui County, 2012, p. 1-16). To meet the need for non-vehicular traffic and safety for people accessing the area using alternate means, the applicant should expand the sidewalk on the mauka (mountain side) from the northernmost section of Makena Alanui Road that abuts their project area to Makena State Park and expand the bike lane from Makena State Park to where it currently ends at the tennis courts. Such actions would also assist in meeting the requirements of Condition 10 of the applicant's Condition in Zoning (Id.), which calls for pedestrian and bicycle paths within the project area and "fronting" it.

Public Parking

To ensure that all public trails, beaches, and parks connected to or within the project area are truly publicly accessible, the SIA team encourages the applicant to provide adequate, permeable parking stalls for access, as well as places to lock bicycles and safe access for bicycle riders and pedestrians. Incorporating permeable surfaces in parking areas would enable the filtering of rain and groundwater runoff over areas that commonly collect vehicle and tire dirt and seepage. It also allows for the flat area to be used safely for other purposes.

Applicant's positive effects:

Those parking stalls committed to by the applicant are noted on Figure 26. For example, the applicant committed to provide approximately 40 public parking stalls, with space for up to 25 additional cars, mauka of Makena Alanui Road to provide parking for both the Mākena-'Ulupalakua Trail and nearby beaches. Parking accommodations will be made at the base of the Aupuni Trail, next to the wastewater treatment plant. Condition 31 (Id.) also requires the construction of a total of 60 parking spaces at Maluaka Beach, with at least 10 at the north end of

the beach. The applicant has so far completed the 10 parking stalls along Makena Road, along with an additional 19 parking stalls along Honoiki Street.

Shuttles

Shuttles between beaches would be an asset as well for a specified, limited number of visitors (a possible result of the above-mentioned sustainable use studies) and improved public safety and emergency ingress and egress (fewer cars parked along the side of the Makena Alanui Road and near people's homes). This system could be part of what is researched in a sustainable use study. (See "Preserve Natural Resources")

Encouraging shuttle access within the Makena area can minimize the number of vehicles on the road, which would also minimize potential safety issues and conflicts between pedestrians and bicyclists. Given the issues provided by testifiers and survey respondents, the shuttle program should include providing access to local people via the shuttle and specific parking spaces. It also would minimize negative parking impacts on local people outside of designated parking areas (i.e., preventing dangerous on-street parking that hampers emergency entry and departure of the area for emergency vehicles and during an evacuation). (See "Emergency Evacuation.")

Applicant's positive effects:

The applicant committed to researching, developing, and providing a shuttle system to and from new parking lots mauka of Makena Alanui Road and the nearby beach parks, including Makena State Park.

Additional Park Lands

According to Condition 35 (Maui Ordnance 3613, 2009), the applicant also must coordinate with DLNR and DPR specifically to "renovate and beautify Makena Landing".

Applicant's positive effects:

In 2013, the applicant received a Shoreline Setback Determination for Makena Landing and a Special Management Area Minor permit. The 2013 plan has continued to evolve based on ongoing input from Mākena's CAG and the CFG. Consultation also continues with Maui County about the full work plan, accessibility, and other improvements.

The applicant has made some landscaping improvements to date, including replacing invasive kiawe trees with seven native trees, and has added parking. Regular maintenance of the landscaping and irrigation, cleaning of the public restrooms, and other building maintenance continues by the applicant, which also seeks to create and provide updated signage that educates locals and visitors about the area's culture and history.

In compliance with another Condition in Zoning, the applicant added 0.66 acres of land to expand a beach park at the south end of Maluaka Beach. (Id., Condition 32.) The combined total of the park area now meets the condition's requirement for a total of at least 1.5 acres being available for public use and beach access, and the donation was formalized and recorded in 2018

with a "Declaration of Restrictive Covenants for Park Purposes". This beach park area is documented on Figure 26.

Furthermore, the applicant has donated additional lands for public and conservation use between Makena Landing and Maluaka Beach. The applicant has identified a 0.455-acre parcel south of Makena Landing that will be annexed into a Makena Landing Park agreement with Maui County. This parcel expands public park and beach access and is marked as park lands in Figure 26. Close to that parcel, the applicant has set aside approximately 0.42 acres, also fronting Makena Bay, as a future conservation area, as it is represented in Figure 26. Additional conservation lands were described in the "Preserve Natural Resources" section, above, and are shown on Figure 26 as the 100-acre Wiliwili and Dryland Forest Conservation Areas.

Social Impacts:

- Additional development of private land abutting public resources such as beaches, the ocean and coastal trails in the Makena area further impacts the welcome that local people feel, the integrity of their sense of place, and the quality and safety of their experiences within and among these natural resources.

Mitigations to consider:

- Ensure that any signage related to public trails and beaches that the applicant maintains incorporates the traditional names and information about the place, about which Makena lineal descendants are consulted.
- Continue to remove invasive plants along and within public trails, beaches, parks and conservation areas, buffering such locations as much as possible with native plants.
- Continue to seek and provide ways to make local people feel welcome and safe in the Makena area, including through expanding and encouraging alternative means of public access and parking (i.e., pedestrian, bicycle and shuttle).

Mākena Mauka Draft EIS appended reports for additional analysis & information:

- Archaeological Literature Review & Field Inspection
- Flora and Fauna Survey
- Transportation Management Plan

Support the Mākena ʻŌiwi Resources & Stewardship Department

Participants in the SIA survey's short answer sections wrote of their support for how Mākena's ʻŌiwi Resources & Stewardship team members have brought Native Hawaiian perspectives and knowledge to the applicant's natural and cultural resource management. Some respondents also called for lineal descendants and others with cultural knowledge about the Makena and Honuaʻula areas to be considered for positions of leadership at, and continued to be hired by, the Mākena Golf & Beach Club. These actions would show the applicant's sincere recognition of the importance of traditional stewardship of the project area's expansive natural and cultural resources, perpetuation of cultural practices on site, and intergenerational training of that

knowledge, experience and practice. One representative example of a broad request to authenticate this recognition comes from the SIA survey and reads:

> *"You must solve for a regenerative Honua'ula ecosystem, you must make sure anyone who comes across any aspect of your development sees deep love and commitment to the Makena culture and environment, and make very meaningful gives towards sustained support of the ecosystem and the local people being able to maintain their relationship with the natural and cultural resources of the place."*

Staffing

Applicant's positive effects:

Currently, the Mākena 'Ōiwi Resources & Stewardship team, which provides for intergenerational learning in cultural practices, including resource management, is staffed by people who have genealogical ties to Honua'ula and Makena. That foundation and their respective and interwoven families nurture a singular sense of purpose and kuleana to care for each other and the place. They have an expanding opportunity to learn from their familial homeland and to re-tap into the source of ancestral knowledge in Honua'ula and Makena. Sustainable resource management requires a reliable and adequate pipeline of future leaders with ties to the place (PBR Hawaii & Assoc., 2018).

Traditional and constant awareness and categorizing of kilo – applying observations of natural phenomenon to cultural practices – by descendants of the place adds to generations of experiential knowledge. While the climate, environment, ecosystems, habitat and human demographics have changed over the same hundreds of years, the land and nature provide evidence of past indigenous success in this space and how the people evolved with this place. Being part of that evolving continuum of knowledge and able to inform and support each other while skills are relearned or improved upon is invaluable. This working environment and community also enables a greater likelihood of employee retention, skilled workers' health and overall satisfaction, and the development of next-generation leadership (Kittinger et al., 2013).

As such, the Mākena 'Ōiwi Resources & Stewardship team has been implementing and should continue to implement the restoration of interconnected native ecosystems and their diverse habitats. (See "Preserve Natural Resources: Dryland Forest.") They work extensively with Mākena's Aloha Makena Foundation, Mākena's Cultural Focus Group (CFG) and Community Advocacy Group (CAG), the lineal descendants of Makena and Honua'ula, and with other local communities. Their programs include, but are not limited to, maintaining Nāulu Farm and Hale Pili, collaborating with the Aloha Makena Foundation and Kīpaipai Community Archaeology & Stewardship Program, providing cultural accesses and practices, offering volunteer training and educational place-based service opportunities to school and community groups (through the Hana Kaulike program, which invites groups to apply to participate in intentional and informed physical labor), and managing cultural and natural resources in the project area.

Nāulu Farm

Applicant's positive effects:

A focal point of the Mākena ʻŌiwi Resources & Stewardship team is the continued development and maintenance of Nāulu Farm. The team repurposed part of an abandoned golf course – that had devolved into cinder and kiawe – into a multi-crop food farm that is also the beautiful backdrop to many Aloha Makena events. The layout of Nāulu Farm, named for the winds and cloud bridge that connect Haleakalā to the sacred island of Kahoʻolawe, reflects Nāulu on the land by following the sun's path through each day and season. Waiʻaka pond, which is an enclosed system of fish, insects and plants, also is a reflection of clouds on the land. The farm supports native and food species, with a goal of feeding Mākena Golf & Beach Club membership with greens, herbs, and fruits from trees, bushes, vines and root systems. During the COVID-19 pandemic, the Mākena ʻŌiwi Resources & Stewardship team brought farm boxes to the community, exemplifying the deep traditional value of caring for one's community.

Including seedlings of native species from family homes, ceremonial and healing plants, flowers and fruits for cultural use and feeding community, and a design that requires reverence for applied kilo: this farm is the team's piko (center/source/homebase). The goal is to have it become both sustainable and sustaining. With about a half of an acre being farmed on a 1½-acre footprint, the potential for expansion should be studied. With enough trained and in-training staff, feeding the Makena community a healthful native diet would become systemic, and it could easily expand to other landowners, creating opportunities for the trading of resources and knowledge.

The planned restoration of the dryland forest (See "Preserve Natural Resources") will also require a nursery and seed storage for native Makena plants to replace the eventually removed invasive species. A native plant nursery could also supply the applicant and homeowners with native landscaping plants and maintain the resources for Hale Pili.

Hale Pili

Applicant's positive effects:

The Mākena ʻŌiwi Resources & Stewardship team learned from and assisted Hōlani Hāna and Hālau Hale Kuhikuhi – led by Master Hale Builder Francis Sinenci – in building a traditional hale, or house, at the entry to Makena. The practitioners invested in the team members' ability to mālama (care for) and maintain the hale into the future by teaching them protocol, history, methods and skills. Named Hale Pili to express the intention of those caring for and working under the protection of the hale to grow pili (connected) to the place and each other, the hale's presence also exemplifies a pili to the history of these lands that continues to expand into the future.

That history returns to life a fondly remembered hālau waʻa (learning center of canoes) that had been the home of a revered fishing uncle in Makena who brought together other Makena fishing families to learn traditional practices, how to kilo their moku's multiple environments, and how to properly mālama the encompassed natural and cultural resources and each other. Fishing families knew the importance of the canoes that carry fishers, their tools, and their fish safely to and from the sea, connecting them to subsistence and to Molokini and Kahoʻolawe.

During a dedication ceremony in 2025 that honored the land and heritage upon which the hale was built, the builders and the purpose of this hale, the Mākena ʻŌiwi Resources & Stewardship team officially received the kuleana to maintain and manage Hale Pili. The team has committed to ensuring that any use of the space will maintain the integrity of its cultural significance and purposes. Hale Pili is intended to be a culturally attuned space where community members who are committed to the reciprocal care for the resources and people of Makena can find peace, fellowship and opportunities to learn, mālama, and steward those resources, using traditional knowledge. For example, those employees, volunteers, and expert practitioners who seek to gather, share, and apply traditional knowledge toward regenerating dryland forests, removing invasive species, caring for culturally significant sites, managing the integrated ecosystems of land and sea, feeding the community, and providing appropriate cultural outreach could gather here. Hale Pili already hosted, through its construction, community days of learning and service toward building the hale and reverence for it.

Social impacts:

- In further developing a large amount of private land, the applicant potentially impacts the opportunities of lineal descendants of Makena and Honuaʻula in particular – and Native Hawaiians of Maui in general – from the experiential learning opportunities of natural resources management and traditional farming.
- The proposed development could create the potential impact of limiting job opportunities for lineal descendants of Makena and other Native Hawaiians to resort maintenance, service and administration jobs, further excluding the options for immersive jobs in traditional resources management and subsistence, and in that of conducting and teaching cultural practices in a pono way that honors the ancestral sources of that knowledge.

Mitigations to Consider:

- Explore methods through which the employment, internship and scholarship processes can help to educate and authentically embed and exemplify traditional values and cultural knowledge in Mākena Golf & Beach Club.
- Encourage on-site intergenerational learning and practicing of cultural knowledge, particularly for natural and cultural resource management and sustainable agriculture.
- Continue and expand the provision of programs that include appropriate cultural accesses and practice as well as volunteer service training and opportunities for project staff and residents in the project area, including but not limited to support for Nāulu Farm and Hale Pili.

Mākena Mauka Draft EIS appended reports for additional analysis & information:

- Agricultural Impact Assessment
- Archaeological Literature Review & Field Inspection
- Cultural Impact Assessment
- Flora & Fauna Report
- Sustainability Report

Water Resources

Many participants in both the EIS scoping process and the SIA survey noted that a lack of freshwater in South Maui remains a concern. Many residents face limits on their own use and have witnessed the fierce impacts of wildfires on drought-impacted lands. They want evidence that future developments like Mākena Mauka will not increase that deficit.

While the moku of Honua‘ula has long held a dry landscape, with water only visible as dew or low-lying clouds when the native dryland forest was in place, or during winter rains when ephemeral streams flow, those natural water cycles have been disrupted by a recent history of ranching, mono-culture agriculture and non-native landscaping in the area. This has resulted in fire-prone landscapes, flood-prone low-lying areas, and marine life in danger of being smothered by pollution and sediment from uncontrolled runoff during severe storms.

The project area retains several large and small gulches that allow for ephemeral streams to flow to the sea when enough rain accumulates. Maintaining those natural waterways and ensuring that they are planted in native species will help to slow down soil loss and prevent washing sediment onto downslope nearshore reefs, drowning coral ecosystems in runoff made up of unbalanced nutrients and detritus. Replanting and landscaping upland and coastal properties with location-appropriate native plants will help the area retain water, recharge aquifers and perpetuate reef health. (See “Preserve Natural Resources.”)

Every ecosystem’s health requires clean freshwater, including the sea. Humans, as part of all of those ecosystems, also require clean, fresh water. Proper management of ‘āina will direct, filter and protect the ground and surface water that runs to the sea. Learning about the natural water processes of the place is an integral element in regenerating natural ecosystems and in using and re-attaining traditional knowledge. Native Hawaiian expertise must be integrated with other scientific methods for managing the environment as it has evolved, and as it continues to evolve in the face of climate change. As such, the SIA team recommends that the applicant invest in the creation and implementation of a master drainage plan: mauka to makai. The plan should include a baseline documentation of existing resources and documentation of steps that would need to be taken toward the goal of a successful return to healthy, interconnected ecosystems. (See “Preserve Natural Resources.”) Management of these resources further assists in the creation of reciprocal jobs for the place and people of the place. (See “Elevate Local Needs.”)

Nearby large landowner Haleakalā Ranch created a conservation easement over 5,320 acres of its property in 1983 for the purposes of reclaiming the native habitat and natural systems of Waikamoi. After fencing the area, removing ungulates and other invasive plant and animal species, reinstating native species, monitoring, and maintaining the area, it has been estimated that the value of groundwater recharge alone due to watershed conservation work in Waikamoi, on the eastern flank of Haleakalā, was $36,200,000.00 in 2018 (The Economic Research Organization at the University of Hawai‘i, 2018, p.1). That conservation also prevented approximately 1,540 tons of sediment from reaching the ocean as of 2017 (Id., p. 14). While the preserve includes a native rainforest versus a dryland forest, it exemplifies the short- and long-term value of restorative conservation work on the freshwater supply. Researchers found that approximately half of the recollected freshwater in Waikamoi recharged aquifers and the other half flowed downslope as surface water, all of which is needed in Honua‘ula (Id., p. 7).

As the applicant plans its development, the SIA team recommends that it pursue documentable ways to build water conservation into their infrastructure, landscaping and overall design. For example, as part of adaptation to climate change, drainage plans should incorporate more than the minimum size and quantity of retention basins currently required by most rules and regulations. Additionally, Condition 27 of the applicant's conditions in zoning (Maui Ordinance 3613, 2009) requires the provision of a water conservation plan, including dual water lines for the use of non-potable water for landscaping and other irrigation needs. Part of the "Build Trust" mitigation topic would include reporting out to the community any water conservation commitments and implementations as they occur.

Applicant's positive effects:

The applicant already is creating R-1 water (recycled to the highest level) and distributing what they have for irrigation purposes. The supply level will remain low until there are enough people living in the area to increase the wastewater inputs, at which point the applicant commits to continue using all of the R-1 water first.

Social impact:

- As Maui residents face increased drought conditions and water-use restrictions, the applicant could use its large development project to provide positive social impacts by exemplifying the implementation of recycled and catchment water use, and of traditional knowledge for potential ground water recharge, surface water management, and native plantings.

Mitigations to consider:

- Invest in the creation and implementation of a master drainage plan – mauka to makai – that incorporates traditional knowledge of Makena and Honua'ula.
- Pursue documentable ways to build water conservation into the infrastructure, landscaping and overall design, which can be shared with the broader community as a shared learning opportunity.
- Encourage project-wide and personal yard landscaping with native, drought -resistant plants that can be irrigated with catchment or reclaimed water that is safe enough to then be further filtered by the ground and enter the aquifer.

Mākena Mauka Draft EIS appended reports for additional analysis & information:

- Design Guidelines
- Groundwater Resources Impact Assessment Report
- Preliminary Engineering and Drainage Report
- Sustainability Report
- Water Quality & Marine Biological Report

Wildfire Preparation

Due to the recent wildfire disasters on Maui, persistent drought conditions that enable fire-prone vegetation, increasingly high temperatures, more common gusty winds, and human-caused fires, the SIA team recommends that the applicant proactively create and enact a fire assessment and prevention plan to manage and lower fire risk for its residential development and surrounding lands and properties. To do so, based on existing protocols, the applicant could continue to update its fire mitigation practices in collaboration with the Maui County Fire Department, Maui Emergency Management Agency, Hawai‘i Wildfire Management Organization, and neighboring landowners, among others.

The largest source of fuel for such fires is the non-native, often invasive vegetation that has overtaken native forests like Honua‘ula’s once native dryland forests. Much of that region has been repopulated with invasive dry scrub forest, including dry grasses, koa haole and kiawe, all of which is often far from water, electricity that could help pump water, and access roads. One of the most proactive and long-term wildfire prevention tactics includes removing invasive species fuel loads and reseeding and restoring as much of the area in native plants as possible. Future homeowners and residents should be educated and made aware of fire hazards and of their community responsibility to take precautions and report hazardous conditions to enhance community safety.

Fire mitigation techniques include consistently maintained, graveled 50-foot-wide fire breaks along internal fence lines; around native seed storage, plant nurseries and pili grass fields; and around the perimeter of the property to help protect from and prevent fire spread inside and outside the project area. Collaboration and coordination with neighboring landowners can enable more efficient firebreaks and more consistent surveys to identify and address mutual fire hazards like dry grasses. For example, integrating grazing operations with sheep or cattle from ‘Ulupalakua Ranch could help control non-native vegetation along fence lines and in large tracts of land nearby, such as those in the Mākena Ranch Estates that are under development. Deer fencing and native plantings help reduce invasive, fire-prone grasses. Vegetation should be cleared during wet seasons, and all plant growth should be removed within firebreaks and along fence lines to help allow for access and prevent fire spread.

Applicant’s positive effects:

In 2017, the applicant enabled the Hawai‘i Department of Defense’s installation of a public emergency siren at the applicant’s wastewater treatment plant. The applicant also installed an emergency siren at Makena State Park.

The applicant will continue to follow Hawai‘i’s Fire Code standards, installing an appropriate number of fire hydrants for its communities and enabling their private water system with backup generators to ensure firefighting water access by allowing their system to be connected to the county’s main for emergencies. Creating a fire response protocol for the extensive dryland forests and farm areas should occur while planning infrastructure, irrigation, and roadways. Prior to the completion of the development, a water truck on site to help mitigate dust particulates should also be available to drench fire breaks during high-risk periods.

Social impacts:

- In a drought-prone area, with temperatures and winds increasing, any development adds fuel to wildfire possibilities and to public anxiety during continued social impacts from the 2023 wildfires.

Mitigations to consider:

- Consult with relevant local, county and state agencies, as well as neighboring landowners, to collaborate on such elements as firebreaks and controlling and removing non-native, fire-prone vegetation, and to encourage fire prevention strategies and safety.

Mākena Mauka Draft EIS appended reports for additional analysis & information:

- Design Guidelines
- Flora and Fauna Survey

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Appendix A.

Mitigation Topics Origin and Table

EIS Preparation Notice Scoping Testimony

The Mākena Mauka project team first published its Environmental Impact Statement Preparation Notice (EISPN) on June 8, 2024, scheduling one public scoping meeting. Responding to public requests, it then republished the notice on June 23, 2024, adding a second public scoping meeting opportunity and extending the comment period by the allowed additional 30 days to August 7, 2024. The two public scoping meetings for the EISPN were held on July 1, 2024 (at Malcolm Center in Kīhei) and July 30, 2024 (at Lokelani Intermediate School cafeteria in Kīhei), both locations in South Maui, which is the same region as that of the Mākena Mauka project.

The Social Impact Assessment (SIA) team reviewed annotated transcripts from these meetings, extracting key issues and recommendations shared by those who participated. Salient issues focused on concerns about limited resources (e.g., housing, water), congestion and overcrowding (e.g., traffic, wastewater), and physical impacts on local people (e.g., displacement, loss of access to beaches). Discussions focused not only on the impacts on local people – but also on native flora and fauna, the land, and other environmental concerns.

Provision of affordable housing, improvement of roadways and evacuation routes, and preserving public access were all noted as social mitigation recommendations. Focusing on environmentally sustainable landscaping and taking into consideration potential run-off pollution and the preservation and planting of local plants were all discussed as ways to decrease negative impacts on the environment. Regardless of recommendations to lessen the negative impacts of Mākena Mauka, the overarching requests from the participants who engaged in either or both public scoping meetings were overwhelmingly not to build Mākena Mauka at all.

Below is a list of concerns generated by grouping statements together on like-topics. Any such categorization is subjective by nature, so we have alphabetized the following list to ensure no intimation of ranking. To triangulate these categories and topics, the same words were used when analyzing the SIA short answer questions through the coding analytic process.

- Access to Public and Private Areas
- Air Quality
- Climate Change
- Community Consultation
- Consultation with Lineal Descendants
- Consultants
- Cultural Impacts
- Cumulative Impacts
- Displacement
- Drainage
- Dryland Forest Impacts
- Economic Impacts
- EIS Preparation Notice
- Evacuation Plan
- Existing Environmental Conditions
- Fire Risk

- Flora and Fauna
- General Environmental Impact
- Giving Back
- Gulches, Streams, and Wetlands
- Historic and Archaeological Impacts
- Housing Affordability/Value of Homes
- Lack of Need or Want for Project
- Legitimacy of Land Ownership
- Level of Detail in EIS Preparation Notice
- Limited Resources
- Marine Environment
- Mental Health Impacts
- Native Hawaiian Access Rights
- Natural Landforms
- Not Honoring Promises
- Open Space
- Other Utilities and Infrastructure
- Overdevelopment, Overtourism
- Readability of Maps in EIS Preparation Notice
- Scenic Views
- Social Impacts
- Soil Impacts
- Timing
- Traffic and Roadways
- Use of Land/Homes (e.g., for locals vs. for those off-island)
- Wastewater Treatment
- Water Availability
- Wind Impacts

Public Concerns, Mitigation Topics and Proposed Mitigation Strategies

The 13 mitigation topics that are described in the Social Impacts and Proposed Mitigation Strategies section of the Draft SIA are labeled below with horizontal, gray headings. Under each of these headings are listed the relevant:

- "Concerns from EISPN Scoping," as listed above;
- "Themes, Categories and Sub-analyses Results from SIA Survey," as listed and described in the "Findings and Results of Social Impact Assessment Survey" section of this report; and
- When applicable, titles of the other appended Mākena Mauka Draft EIS Consultant Reports that are related to and will inform these topics.

The remaining concerns elicited from the EISPN scoping meetings that were listed above and are not included in Table 1 because they are addressed in or by the Draft EIS itself, including:

- EIS Preparation Notice
- Existing environmental conditions
- General environmental impact
- Legitimacy of ownership
- Readability of maps in EIS Preparation Notice

Appendix Table A1. Public concerns and mitigation topics

Affordable Housing	
Concerns from EISPN Scoping	- Economic Impacts - Housing affordability/value of homes - Mental Health Impacts - Other utilities and infrastructure
Themes, Categories and Sub-Analyses Results from SIA Survey	- Affordable housing with priority for local people - Build affordable housing - Lack of affordable housing - Limited affordable housing - Listen to local people and prioritize their needs to continue living and thriving on Maui - Too many luxury homes that are only inhabited a short period of time each year
Related Mākena Mauka Draft EIS Consultant Reports	- Design Guidelines - Economic and Fiscal Impact Analysis Report - Market study - Preliminary Engineering and Drainage Report - Sustainability Report - Water Resources Report
Build Trust	
Concerns from EISPN Scoping	- Giving back to local communities - Not honoring promises, breaking promises
Themes, Categories and Sub-Analyses Results from SIA Survey	- There are some opportunities to mitigate the negative impacts of Mākena Mauka, but these mitigations do not outweigh the negative aspects, and it is not trusted that the mitigations will be honored
Elevate Local Culture and Community	
Concerns from EISPN Scoping	- Community consultation - Consultation with lineal descendants
Themes, Categories and Sub-Analyses Results from SIA Survey	- Displacement of local people - Oversaturation of wealthy non-Maui residents - Not good for the local people, land, or resources of Maui
Related Mākena Mauka Draft EIS Consultant Reports	- Agricultural Impact Assessment - Archaeological Literature Review & Field Inspection - Cultural Impact Assessment - Flora & Fauna Report - Sustainability Report

Elevate Local Needs	
Concerns from EISPN Scoping	- Community consultation - Consultation with lineal descendants - Displacement - Economic Impact - Giving back - Lack of need or want for project - Mental health impacts - Scenic views - Timing (e.g., with Lahaina fires and Kīhei flooding) - Use of land/homes (e.g., for locals vs. for those off-island)
Themes, Categories and Sub-Analyses Results from SIA Survey	- Lahaina should be rebuilt before additional luxury developments - Listen to local people and prioritize their needs to continue living and thriving on Maui - The needs of local people and land of Maui should be prioritized and centered first and foremost when it comes to development decisions on Maui - Provide resources to rebuild Lahaina, and give back to local community - Resources for building should go to prioritize local communities
Related Mākena Mauka Draft EIS Consultant Reports	- Agricultural Impact Assessment - Economic and Fiscal Impact Analysis Report - Flora & Fauna Report - Market Study - Sustainability Report - Traffic Impact Analysis Report - View Analysis - Water Quality and Marine Biology Assessment Report
Emergency Evacuation	
Concerns from EISPN Scoping	- Climate change - Evacuation plan
Themes, Categories and Sub-Analyses Results from SIA Survey	- Build new, safe roads and evacuation routes - Unsafe evacuation routes exacerbated by more people
Related Mākena Mauka Draft EIS Consultant Reports	- Preliminary Engineering and Drainage Report - Traffic Impact Analysis Report - Transportation Management Plan
Institutionalize and Expand Mākena's Aloha Makena Foundation	
Concerns from EISPN Scoping	- Community Consultation - Cultural impacts - Giving back - Historic and archaeological impacts - Native Hawaiian access rights
Themes, Categories and Sub-Analyses Results from SIA Survey	- Consult with lineal descendants and Native Hawaiians of the place - Limited access to cultural land and spaces, beaches, and oceanfront when more luxury developments are built - The needs of local people and land of Maui should be prioritized and centered first and foremost when it comes to development decisions on Maui - Preserve Mākena Mauka's native flora and fauna

Related Mākena Mauka Draft EIS Consultant Reports	- Archaeological Literature Review & Field Inspection - Cultural Impact Assessment - Sustainability Report
Overcrowding Analysis and Prevention	
Concerns from EISPN Scoping	- Cumulative Impacts - Displacement - Over-development/ over-tourism - Scenic views - Traffic and roadways
Themes, Categories and Sub-Analyses Results from SIA Survey	- Overcrowding on beaches and roads
Related Mākena Mauka Draft EIS Consultant Reports	- Design Guidelines - Market Study - Noise Assessment Report - Preliminary Engineering and Drainage Report - Transportation Management Plan - View Analysis - Visitor Trends at Mākena and Wailea Beaches Using Azira Data (Appendix D to this Social Impact Assessment) - Water Quality and Marine Biology Assessment Report
Preserve Natural Resources	
Concerns from EISPN Scoping	- Air Quality - Climate change - Drainage - Dryland forest impacts - Flora and fauna - Gulches, streams and wetlands - Limited resources - Marine environment - Natural landforms - Open space - Scenic views - Soil impacts
Themes, Categories and Sub-Analyses Results from SIA Survey	- Preserve Mākena Mauka's native flora and fauna
Related Mākena Mauka Draft EIS Consultant Reports	- Air Quality Assessment Report - Archaeological Literature Review & Field Inspection - Design Guidelines - Flora and Fauna Survey - Groundwater Resources Impact Assessment Report - Preliminary Engineering and Drainage Report - Sustainability Report - View Analysis - Water Quality and Marine Biology Assessment Report

Prioritize Lineal Descendants of Makena and the Moku of Honua‘ula	
Concerns from EISPN Scoping	- Community consultation - Consultation with community and lineal descendants - Cultural impacts - Historic and archaeological impacts - Native Hawaiian access rights - Scenic views
Themes, Categories and Sub-Analyses Results from SIA Survey	- Consult with lineal descendants of the place - The land, flora, fauna, natural resources, and cultural history of Maui need to be protected and prioritized - Limited access to cultural land and spaces, beaches, and oceanfront when more luxury developments are built
Related Mākena Mauka Draft EIS Consultant Reports	- Archaeological Literature Review & Field Inspection - Cultural Impact Assessment - Sustainability Report - View Analysis
Public Access	
Concerns from EISPN Scoping	- Access to public and private areas - Open space preservation and access
Themes, Categories and Sub-Analyses Results from SIA Survey	- Ensure Mākena Mauka remains accessible by locals - Limited access to cultural land and spaces, beaches, and oceanfront when more luxury developments are built - Preserve access to open space, beaches, oceanfront for access by local people
Related Mākena Mauka Draft EIS Consultant Reports	- Archaeological Literature Review & Field Inspection - Flora and Fauna Survey - Transportation Management Plan
Support the Mākena ‘Ōiwi Resources & Stewardship Department	
Concerns from EISPN Scoping	- Cultural impacts - Historic and archaeological impacts - Native Hawaiian access rights
Themes, Categories and Sub-Analyses Results from SIA Survey	- Consult with lineal descendants of the place - The land, flora, fauna, natural resources, and cultural history of Maui need to be protected and prioritized - Limited access to cultural land and spaces, beaches, and oceanfront when more luxury developments are built - The needs of local people and land of Maui should be prioritized and centered first and foremost when it comes to development decisions on Maui - Preserve Mākena Mauka’s native flora and fauna
Related Mākena Mauka Draft EIS Consultant Reports	- Archaeological Literature Review & Field Inspection - Cultural Impact Assessment - Flora & Fauna Report - Sustainability Report
Water Resources	
Concerns from EISPN Scoping	- Climate change - Other utilities and infrastructure - Wastewater treatment - Water availability

Themes, Categories and Sub-Analyses Results from SIA Survey	- Concerns about limited resources in Maui, and Mākena Mauka will make the problems worse - Establish regulations on water use by luxury developments and homeowners - Limited fresh water: residents already living with water restriction regulations
Related Mākena Mauka Draft EIS Consultant Reports	- Design Guidelines - Groundwater Resources Impact Assessment Report - Preliminary Engineering and Drainage Report - Sustainability Report - Water Quality & Marine Biological Report
Wildfire Preparation	
Concerns from EISPN Scoping	- Climate change - Fire risk
Related Mākena Mauka Draft EIS Consultant Reports	- Design Guidelines - Flora and Fauna Survey

Appendix B.

Mākena Mauka Social Impact Assessment Survey

Mahalo for helping us to learn what is important to you!

This section is about you.

1. What is your age in years?

- ○ Less than 17 years of age
- ○ 18 - 24 years
- ○ 25 - 34 years
- ○ 35 - 44 years
- ○ 45 - 54 years
- ○ 55 - 64 years
- ○ 65 years or older
- ○ Prefer not to answer

2. Which racial/ethnic group(s) do you belong to? (Select ALL that apply)

- ☐ Caucasian
- ☐ Chinese
- ☐ Filipino
- ☐ Native Hawaiian
- ☐ Japanese
- ☐ Korean
- ☐ Micronesian (please specify) _____
- ☐ Pacific Islander (please specify) _____
- ☐ Other: _____
- ☐ Prefer not to answer

3. Of the racial/ethnic group(s) you belong to, which do you most closely identify with? (Select ONLY ONE)

- ○ Caucasian
- ○ Chinese
- ○ Filipino
- ○ Native Hawaiian
- ○ Japanese
- ○ Korean
- ○ Micronesian (please specify) _____
- ○ Pacific Islander (please specify) _____
- ○ Other: _____
- ○ Prefer not to answer

4. With what gender do you identify?

- ○ Female
- ○ Male
- ○ Non-Binary
- ○ Other: _____
- ○ Prefer not to answer

5. What is your combined yearly household income?

- ○ $0 – $49,999
- ○ $50,000 – $99,999
- ○ $100,000 – $159,999
- ○ $160,000 – $199,999
- ○ $200,000 – or more
- ○ Prefer not to answer

6. What is the highest level of school you have completed or the highest degree you have received?

- ○ Less than high school degree
- ○ High school degree or equivalent (e.g., GED)
- ○ Some college but no degree
- ○ Associate degree
- ○ Bachelor's degree
- ○ Graduate degree
- ○ Prefer not to answer

7. Which of the options below best describes your employment status?

- ○ Disabled, unable to work
- ○ Full-Time Employment (including self-employment)
- ○ Part-Time Employment (including self-employment)
- ○ Retired
- ○ Unemployed, looking for work
- ○ Unemployed, not looking for work
- ○ Prefer not to answer

8. If you currently have an occupation, what is it?

_____

9. Please describe your marital status.

- ○ Married
- ○ Widowed
- ○ Divorced
- ○ Separated
- ○ Never married
- ○ Prefer not to answer

10. How many people live in your home, including yourself?

_____

11. How many children, aged 17 or younger, including yourself, live in your home?

_____

12. How many Elders, aged 65 or older, including yourself, live in your household?

_____

13. What is your zip code of residency?

_____

14. How long have you lived in Hawai‘i, up to today?

- ○ Less than 1 year
- ○ 1-5 years
- ○ 6-10 years
- ○ 11-15 years
- ○ 16-20 years
- ○ More than 21 years
- ○ I don’t live in Hawai‘i
- ○ I used to live in Hawai'i but don't currently live here

15. If you used to live in Hawai'i but don't currently live here, how long ago did you live in Hawai‘i?

_____

16. If you used to live in Hawai‘i but don't currently live here, how long did you live in Hawai‘i before you moved away?

_____

17. How long have you lived on Maui, up to today?

- ○ Less than 1 year
- ○ 1-5 years
- ○ 6-10 years
- ○ 11-15 years
- ○ 16-20 years
- ○ More than 21 years
- ○ I don’t live on Maui
- ○ I used to live on Maui but don't currently live here

18. How much of the year do or did you live on Maui?

- ○ 1 month or less
- ○ 2-6 months
- ○ 7-12 months

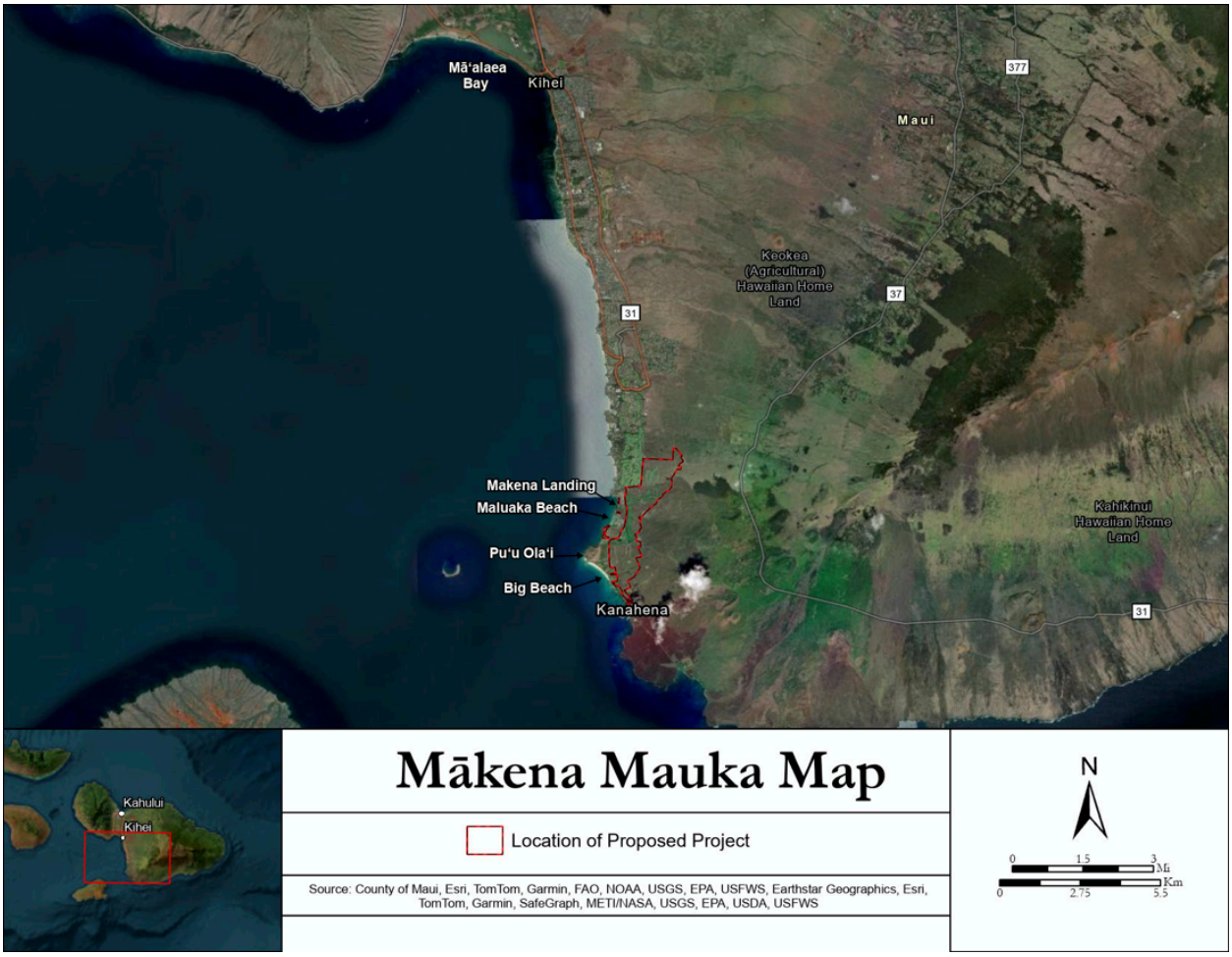
19. If you used to live on Maui but don't currently live here, how long ago did you live on Maui?

_____

20. If you used to live on Maui but don't currently live here, how long did you live on Maui before you moved away?

_____

This section is about your experience with Mākena Mauka.



21. What is your relationship to Mākena Mauka? (Check ALL that apply)

- ☐ I am a resident of Maui.
- ☐ I am a resident of South Maui.
- ☐ I am a resident of the moku of Honua'ula (i.e., the region of Mākena Mauka)
- ☐ I am a lineal descendant of the Mākena Mauka area/Honua'ula
- ☐ I am a visitor to Mākena Mauka/Honua'ula.
- ☐ I am a visitor to South Maui.
- ☐ I work in Mākena Mauka/Honua'ula area.
- ☐ I work in South Maui.
- ☐ I am involved in ranching, agriculture, and food production in the Mākena Mauka/Honua'ula
- ☐ I am involved in ranching, agriculture, and food production in South Maui.
- ☐ I am a subsistence fisher or hunter in the Mākena Mauka/Honua'ula area.
- ☐ I am a subsistence fisher or hunter in South Maui.
- ☐ I recreate outdoors in the Mākena Mauka/Honua'ula area.
- ☐ I recreate outdoors in South Maui.
- ☐ I am a member of an environmental and/or Native Hawaiian advocacy group.
- ☐ I am a member of the Mākena Mauka Golf & Beach Club.
- ☐ I am a local business owner impacted by Mākena Mauka.
- ☐ I have heard of Mākena Mauka but have no direct involvement.
- ☐ I am not familiar with Mākena Mauka.

22. If you had to select just ONE most important to you, what is your relationship to Mākena Mauka?

- ○ I am a resident of Maui.
- ○ I am a resident of South Maui.
- ○ I am a resident of the moku of Honua'ula (i.e., the region of Mākena Mauka)
- ○ I am a lineal descendant of the Mākena Mauka area/Honua'ula
- ○ I am a visitor to Mākena Mauka/Honua'ula.
- ○ I am a visitor to South Maui.
- ○ I work in Mākena Mauka/Honua'ula area.
- ○ I work in South Maui.
- ○ I am involved in ranching, agriculture, and food production in the Mākena Mauka/Honua'ula
- ○ I am involved in ranching, agriculture, and food production in South Maui.
- ○ I am a subsistence fisher or hunter in the Mākena Mauka/Honua'ula area.
- ○ I am a subsistence fisher or hunter in South Maui.
- ○ I recreate outdoors in the Mākena Mauka/Honua'ula area.
- ○ I recreate outdoors in South Maui.
- ○ I am a member of an environmental and/or Native Hawaiian advocacy group.
- ○ I am a member of the Mākena Mauka Golf & Beach Club.
- ○ I am a local business owner impacted by Mākena Mauka.
- ○ I have heard of Mākena Mauka but have no direct involvement.
- ○ I am not familiar with Mākena Mauka.

23. How will Mākena Mauka directly impact your community?

24. How would you have Mākena Mauka benefit you and your community?

25. Please tell us about another development on Maui that is working really well for you/your community.

26. What one thing do you personally want the decision makers for the draft Environmental Impact Statement and the drafters of the Social Impact Assessment to know?

27. What other groups of people should we connect with to seek further feedback about the proposed Mākena Mauka project?

Focus Group Interest Form

If you are interested in participating in a future focus group to discuss Mākena Mauka further or to be involved in reviewing the results from this survey please, select “yes” and provide your name, phone number, and/or email.

If you select "yes", your name, phone number, and/or email will not be kept on a separate sheet and not connected to this survey.

- ○ Yes, I am interested in participating in a future focus group

  (1) Name: _____
  (2) Phone number: _____
  (3) Email: _____

- ○ No, I am not interested in participating in a future focus group

Appendix C.

Preliminary Findings Shared with Survey Respondents

PRELIMINARY FINDINGS FROM SOCIAL IMPACT ASSESSMENT SURVEY FOR MĀKENA MAUKA

For Review by Volunteer Survey Participants

Deadline for Feedback: Wednesday, February 19, 2025 11:59 pm

TABLE OF CONTENTS

- Purpose and goal
- Overview of survey
- Summary of how survey was analyzed
- Draft preliminary themes
  - Theme
  - Supporting categories
  - Example quotations from short answer survey responses
- Next steps

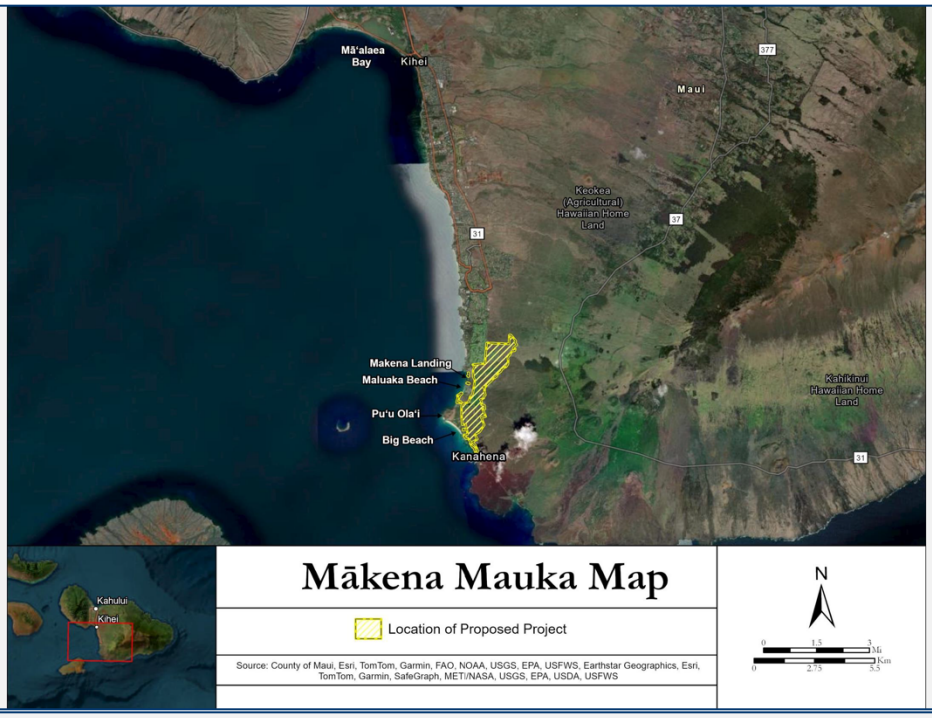
PURPOSE OF THIS SLIDE PRESENTATION

- Share the preliminary findings from the Social Impact Assessment Survey
- Gain additional anonymous feedback from volunteer survey participants regarding the draft findings from the survey
- If you have additional feedback regarding the preliminary findings presented in this slide show, please go to this URL: https://tinyurl.com/MakenaMauka-MemberCheck

  or scan this QR code to provide your feedback
- All feedback, which is anonymous, needs to be submitted by Wednesday, February 19, 2025 at 11:59 pm

GOAL OF SOCIAL IMPACT ASSESSMENT

- Understand the opinions, voices, and perspectives of the people of Maui regarding Mākena Mauka
- Provide an anonymous space for giving feedback
- Learn which communities are impacted by Mākena Mauka and why
- Identify how different communities can be impacted by Mākena Mauka
- Provide recommendations to mitigate the impacts of Mākena Mauka on local people of Maui



ABOUT THE SURVEY

- The survey was sent via email to diverse communities in Maui between January 28, 2025 and February 10, 2025
- The survey was anonymous and collected using a program called Qualtrics
- The survey had 22 multiple choice questions about demographics (for example, household size, how long one has lived on Maui)
- The survey had 5 short answer questions

SURVEYS COMPLETED

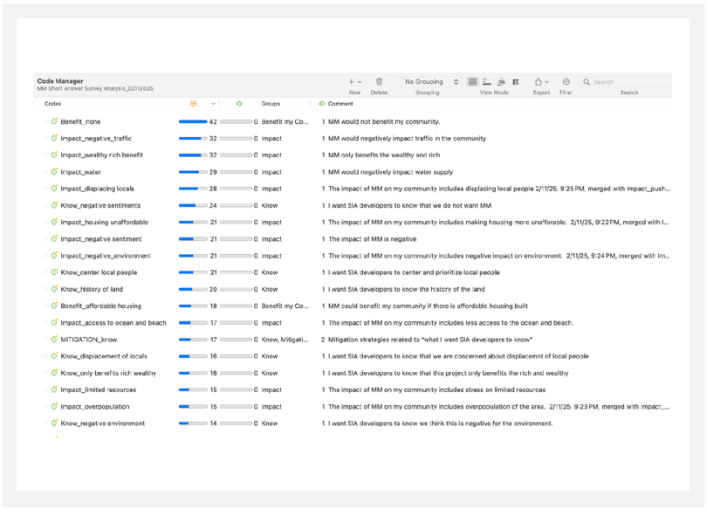
- 161 surveys completed
  - 96 were 100% complete
  - 36 were ≥70% complete
  - 29 were < 70% complete
- Data saturation was met for all of the short answer questions
  - This means that towards the end of analysis of the short answer questions, no new codes, categories, or themes were generated
  - Another way of saying this is: the research team is confident that we understand what volunteer participants think and that the volunteer participants largely shared very similar thoughts, opinions, perceptions about Mākena Mauka

SHORT ANSWER QUESTIONS FROM THE SURVEY

- How will Mākena Mauka directly impact your community?
- How would you have Mākena Mauka benefit you and your community?
- Please tell us about another development on Maui that is working really well for you/your community.
- What one thing do you personally want the decision makers for the draft Environmental Impact Statement and the drafters of the Social Impact Assessment to know?
- What other groups of people should we connect with to seek further feedback about the proposed Mākena Mauka project?

HOW WERE THE SHORT ANSWER RESPONSES ANALYZED

- All of the short answer responses for each question were analyzed by labeling, or giving codes to, every response line by line
- This is an example of some of the codes
- Codes were each defined in the "comment" section
- There were 68 codes in all



HOW THE SHORT ANSWER RESPONSES WERE ANALYZED

- After all of the responses were coded line-by-line, like-codes were grouped together to create categories
- Categories then were grouped together into overall themes that they support

PRELIMINARY FINDINGS – THEME #1

- Mākena Mauka is not good for local people, land, or resources of Maui.

- Supporting categories
  - Lack of affordable housing
  - Displacement of local people
  - Overcrowding on beaches, roads
  - Too many luxury homes only occupied a short time each year
  - Oversaturation of wealthy non-Maui residents

EXAMPLE SURVEY RESPONSES SUPPORTING THEME #1

- *"It* [Mākena Mauka] *will take water away from important resources. It will take away water from other communities. There is no ACTUAL affordable housing as part of the development. It will impact access to Oneloa. It will cause massive pollution to the area and surrounding waters. It will attract wealthy residents that don't care about the history of the area or the community. They will be many part time residents that don't have an interest in the environment or the history of Hawaii and its people. It will attract people from off island and will further drive out any actual natives that might be left."*

- *"We need to stop prioritizing luxury development for tourists and wealthy transplants and part-time residents. Especially with our limited land, water, and other resources on Maui, we need to focus on creating more and cheaper housing for our locals, especially the kanaka maoli and kama'aina."*

PRELIMINARY FINDINGS – THEME #2

- Survey respondents are very concerned about limited resources in Maui, and Mākena Mauka will make the problems worse.

- Supporting categories
  - Limited fresh water
    - Residents already living with water restriction regulations
  - Limited affordable housing
  - Too much traffic
  - Unsafe evacuation routes made worse with more people
  - Limited access to cultural land and spaces, beaches, oceanfront when more luxury developments are built

EXAMPLE SURVEY RESPONSES SUPPORTING THEME #2

- *"First -we don't have the drinking water, infrastructure, roads, medical care, police/fire support or ocean access/space on this island for this housing project. It would be filled with non full time residents who would not malama the land, they over run the beaches, destroy the reef and are disrespectful of the wildlife, steal all the water for landscaping and pools. It would completely change the quality of life for our Maui residents. We would have all the problems of Oahu with no benefits. This is horrible plan."*

- *"We don't need it. We don't want it. We already have more than enough homes that sit empty the majority of the year. What we need are affordable homes for the working class. As a business owner, I have a hard time hiring employees because of the terrible housing crisis we have on Maui. We don't need more expensive homes and wealthy people coming here for part of the year using our resources."*

PRELIMINARY FINDINGS – THEME #3

- The needs of local people and the land of Maui should be prioritized and centered first and foremost when it comes to development decisions on Maui.

- Supporting categories
  - Preserve access to open space, beaches, ocean front for access by local people
  - Affordable housing with priority for local people
  - Too many luxury homes that are only inhabited a short time each year
  - Resources for building should go to prioritize local communities
    - Lahaina should be rebuilt before additional luxury developments
  - The land, flora, fauna, natural resources, and cultural history of Maui need to be protected and prioritized

EXAMPLE SURVEY RESPONSES SUPPORTING THEME #3

- *"Makena is a special and historical area - respect the locals and their needs. Build in a manner than protects & enhances the Āina; not in a manner that protects the developers and those who buy in. Educate people about the culture and needs of those who already reside here. Educate that it's not an entitlement, rather a responsibility to live here."*

- *"They* [developers] *need to respect and honor the native Hawaiians and the long time residents who have lived in Maui for several generations. Mākena Maui has a moral obligation to preserve the Hawaiian culture and natural resources of Maui. The only way to accomplish these expectations is to prevent development and make it a national park."*

PRELIMINARY FINDINGS – THEME #4

- There are some opportunities to mitigate the negative impacts of Mākena Mauka, but these mitigations do not outweigh the negative aspects and it is not trusted that the mitigations will be honored.

- Supporting categories
  - Build affordable housing
  - Provide resources to rebuild Lahaina and give back to local community
  - Build new, safe roads and evacuation routes
  - Preserve Mākena Mauka's native flora and fauna
  - Ensure Mākena Mauka remains accessible by locals
  - Establish regulations on water use by luxury developments and homeowners
  - Listen to local people and prioritize their needs to continue living and thriving on Maui

EXAMPLE SURVEY RESPONSES SUPPORTING THEME #4

- *"Keep as much of the open space and natural views as possible. (…) Provide hiking and camping areas that have been requested long ago for this area. This is what the people of South Maui have always asked for in this area. (…) Don't create more landscape features in rich people's backyard. Respect the native species found in this area though action not just in writing."*

- *"Should the road be expanded to accommodate this new population, I would like to see Makena Mauka focus on genuine housing for locals. Given the devastation of the Lahaina fires, there are numerous families displaced. Thus it does not make sense for the community to encourage such a large influx of newcomers when people who directly contribute to our rich community are forced out."*

NEXT STEPS

- Please provide your anonymous feedback (see next slide) on the four (4) themes
- Survey and feedback results will be provided to the Mākena Mauka project team
- Draft Social Impact Assessment (SIA) will include the full results and proposed mitigations for public review, as part of the Mākena Mauka Draft Environmental Impact Statement (EIS)
- Focus Groups will be conducted following the Draft EIS
- Results from the Focus Groups will be provided to the Mākena Mauka project team
- Final SIA will include the full report from the Focus Groups, assessment results and proposed mitigations
- Final SIA will be part of the Final EIS
- Community collaboration will continue

PLEASE PROVIDE YOUR FEEDBACK

- If you have additional feedback regarding the preliminary findings presented in this slide show, please go to this URL: https://tinyurl.com/MakenaMauka-MemberCheck

  or scan this QR code to provide your feedback
- All feedback needs to be submitted by Wednesday, February 19, 2025 11:59 pm

Appendix D.

Visitor Trends at Mākena and Wailea Beaches Using Azira Data, Memorandum by Fehr & Peers

FEHR PEERS

Memorandum

Date: June 19, 2025

To: AREG AC Makena Propco, LLC

From: Sohrab Rashid, Amir Sadeghi, William Chen, and Mike Wallace

Subject: Visitor Trends at Makena and Wailea Beaches Using Azira Data

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This memorandum documents our findings regarding visiting trends at Makena and Wailea beaches using Azira human movement data. The primary purpose of this study is to estimate the future users of the Makena and Wailea beaches utilizing existing data and extrapolating based on housing type. This existing data is used to estimate potential future beach usage by residents of the new units in comparison to visitors originating from hotels/resorts, residents of Maui, as well as visitors from outside Maui.

The analysis focuses on eighteen (18) study beaches within the Wailea-Makena area of Maui, including Kama'ole Beach Park I, Kama'ole Beach Park II, Kama'ole Beach Park III, Keawakapu Beach (North), Keawakapu Beach (South), Mōkapu Beach, Ulua Beach, Wailea Beach, Polo Beach, Palauea Beach, North Po'olenalena Beach, South Po'olenalena Beach, Ka'awa Beach, Makena Landing Beach, Maluaka Beach, One'uli Beach, Pu'u'Ola'i (Little) Beach, and Makena State Park (Big Beach).

Figure 1 illustrates the locations of the study beach boundaries (in yellow), Makena Golf & Beach Club part-time (PT) or full-time (FT) occupied residential units (within the magenta boundaries), Other Makena part-time (PT) or full-time (FT) occupied residential units (within the orange boundaries), Wailea part-time (PT) or full-time (FT) occupied residential units (within the blue boundaries), and Wailea hotel/resort areas (in red).

Azira Data

The Azira dataset used for this analysis provides human movement data, primarily derived from smartphones and other mobile devices such as tablets. Location-based information is collected from these devices that anonymously documents the trip trajectories of all sampled trips during our study period, from January 2019 to June 2024. The dataset offers three report types: the Pathing X report, the Common Evening/Daytime Location report, and the Demographics report. Each is described below.

- The Pathing X report provides detailed information about the travel patterns of individual devices before and after they are observed at a study location. This report includes the device's location observations, along with the timing of those observations relative to the visit. It is used to understand travel behavior and analyze traffic patterns. Using this report, we determine where visitors stay the night (i.e., their "nighttime location") while in the South Maui area, which could be a second home, vacation rental, or hotel/resort property within the Makena and Wailea study area.
- The Common Evening/Daytime Location report identifies where a device typically stays during the evening and early morning hours throughout the year. This information identifies their permanent "home location" (e.g., on Maui, other Hawaiian islands, on the Mainland or elsewhere)
- The Azira Demographics report provides socio-economic data of the visitors' census tract of permanent home locations, including age, economic (Median Household Income and Median Home Value), education, income, and race. This report does not factor into our final analysis.

Azira data was available within the study area from January 2019 through June 2024. Because of the global COVID-19 pandemic dramatically changed travel patterns and behavior for residents and tourists alike, the analysis was conducted under two distinct scenarios:

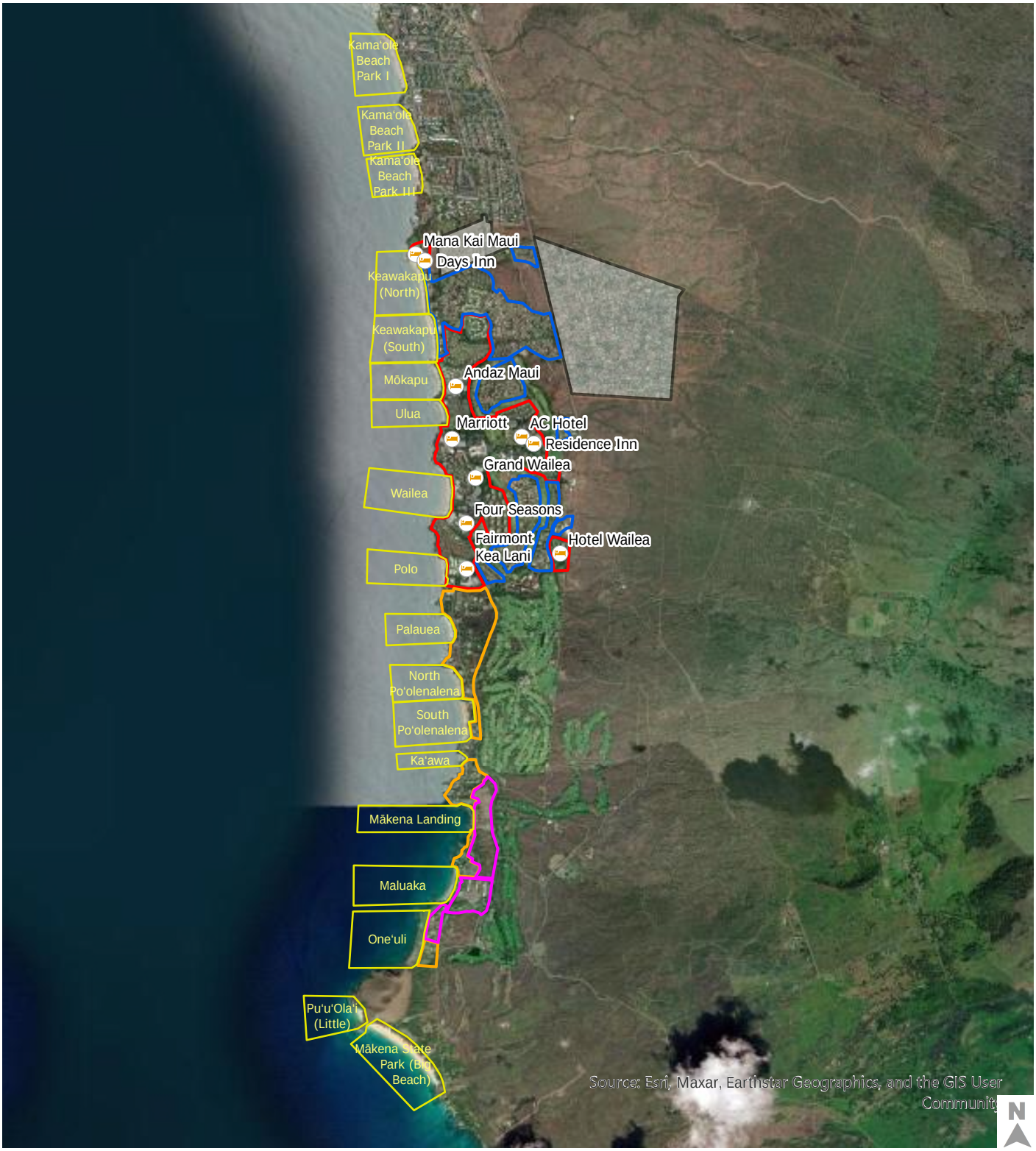
- Full Dataset Analysis: This section includes an analysis of the entire dataset.
- Non-COVID Period Analysis: This section focuses on data excluding the COVID period (Year 2020), providing additional insights into the non-COVID period.

The data and findings for each scenario are presented separately below:

1. Entire Dataset Analysis (Including COVID-19 Period):

Distribution of Beach Visits

For this analysis, the nighttime location of unique devices during the evening (8 PM – 5 AM) was identified for the entire study period based on a daily average. A device was considered to have made a beach visit if it was observed on the beach for at least 15 minutes. **Table 1** contains the percentage of detected visits of visitors whose devices' nighttime locations are located in each residential or hotel/resort area. In addition to the percentage of visitors whose nighttime locations are in the Makena Golf & Beach Club PT/FT residential units (within the magenta boundaries on **Figure 1**), the other columns in **Table 1** contain the percentages of people staying in other Makena PT/FT residential units (orange boundaries), Wailea PT/FT residential units (blue boundaries), Wailea hotel/resort areas (red boundaries), and from other locations categorized by Maui residents and non-Maui residents. Non-Maui residents includes guests staying at other hotels/resorts on Maui and any day visitors to the island from other Hawaiian islands and outside Hawai'i.



- Mākena Golf & Beach Club Part-Time (PT) or Full-Time (FT) Occupied Residential Units
- Other Mākena Part-Time (PT) or Full-Time (FT) Occupied Residential Units
- Wailea Part-Time (PT) or Full-Time (FT) Occupied Residential Units
- Wailea Short-Term Vacation Resort & Hotel Areas
- Wailea Hotels/Resorts
- Beaches
- Wailea Other Nearby Residential Units

Figure 1

Study Area

Table 1: Percentage of Visit Samples to Study Beaches by Residential Zone (January 2019 to June 2024 Including Covid-19 Period Data)

Study Beaches	Nighttime Location of Beach Visitors (Daily Average)						
	Makena Golf & Beach Club PT/FT Residential	Other Makena PT/FT Residential	Wailea PT/FT Residential	Wailea Hotel/ Resort	All Other Locations (Maui-Residents)	All Other Locations (Non-Maui Residents)	Total
1. Kamaʻole Beach Park I	0.02%	0.06%	0.20%	1.42%	40.58%	57.72%	100%
2. Kamaʻole Beach Park II	0.03%	0.04%	0.24%	1.74%	32.29%	65.66%	100%
3. Kamaʻole Beach Park III	0.06%	0.01%	0.68%	2.53%	38.45%	58.28%	100%
4. Keawakapu Beach (North)	0.02%	0.10%	3.51%	28.14%	37.04%	31.19%	100%
5. Keawakapu Beach (South)	0.01%	0.06%	4.85%	36.34%	35.23%	23.51%	100%
6. Mōkapu Beach	0.00%	0.17%	4.08%	42.89%	29.00%	23.86%	100%
7. Ulua Beach	0.00%	0.04%	2.83%	43.72%	28.02%	25.39%	100%
8. Wailea Beach	0.07%	0.14%	1.70%	47.95%	22.07%	28.07%	100%
9. Polo Beach	0.01%	0.24%	1.56%	45.63%	28.30%	24.26%	100%
10. Palauea Beach	0.00%	4.51%	0.93%	11.73%	52.74%	30.09%	100%
11. North Poʻolenalena Beach	0.04%	12.67%	0.61%	4.68%	48.06%	33.94%	100%
12. South Poʻolenalena Beach	0.06%	13.57%	0.25%	4.77%	43.02%	38.33%	100%
13. Kaʻawa Beach	0.06%	35.63%	0.28%	5.03%	35.45%	23.55%	100%
14. Makena Landing Beach	0.42%	7.38%	0.51%	5.70%	52.82%	33.17%	100%
15. Maluaka Beach	3.92%	4.03%	1.33%	7.93%	42.72%	40.07%	100%
16. Oneʻuli Beach	1.11%	0.40%	1.17%	4.55%	61.46%	31.31%	100%
17. PuʻuʻOlaʻi (Little) Beach	0.00%	0.48%	0.78%	14.90%	40.35%	43.49%	100%
18. Makena State Park Beach (Big Beach)	0.15%	0.04%	1.06%	10.32%	46.97%	41.46%	100%
Total[2]	***0.19%***	***1.98%***	***1.49%***	***20.49%***	***31.57%***	***44.28%***	***100%***

1. The data in this table weighs each day equally.
2. Totals by beach are based on combined data and are not the sum of each row.

To help illustrate the limited proportion of beach visits originating from the PT/FT residential units, we have graphed the data from **Table 1**. **Figure 2** illustrates the proportion of visitors at each beach location based on their nighttime location origin, and **Figure 3** shows each residential area and the proportional distribution to each beach. In addition, individual beach visitation trends by nighttime location are presented in **Appendix A**.

The key finding from the number of visitor samples listed in **Table 1** and illustrated on **Figure 2** is that the proportion of beach visitors from existing Makena Golf & Beach Club PT/FT residences is nominal compared to other visitor origins. Makena Golf & Beach Club PT/FT residents/guests have the highest sample size visitation at the Maluaka Beach, Makena Landing Beach, and Wailea Beach, as shown in **Table 2**.

The beach with the highest proportion of Makena Golf & Beach Club PT/FT residents and/or guests is Maluaka Beach, and those residents/guests represent just under five (5) percent of the total visitors. Of the remaining visitors to this beach, roughly 95 percent come from (in descending order): other Maui residents, hotel/resort guests from elsewhere on the island, Wailea hotels/resorts, other Makena PT/FT residents/guests, and Wailea PT/FT residential areas.

At all beaches studied, Makena PT/FT residents/guests make up just 2.17 percent of visitors—equivalent to fewer than three (3) out of every 100 beach visitors. Of these, Makena Golf & Beach Club PT/FT residents/guests account for only 0.19 percent, meaning typically less than one (1) visitor per 500, while other Makena PT/FT residents/guests make up approximately 1.98 percent, or about two (2) visitors per 100.

This finding is expected in that the primary reason Makena Golf & Beach Club owners tend not to visit the beaches is that the club offers a private amenity program, including pools, spas, fitness facilities, food and beverage (F&B), and golf. With all the onsite amenities available, their beach visits are mainly limited to Maluaka Beach.

From **Figure 3**, the Azira data samples show that the beaches with the highest proportion of Wailea hotel/resort guests are those immediately adjacent to the resort properties including Mōkapu, Wailea, Ulua and Polo Beaches. The beaches with the highest proportion of Maui residents from outside Makena and Wailea include One'uli, Makena, and Palauea Beaches. Lastly, beaches with the highest proportion of non-Maui residents staying elsewhere on the island include Kama'ole Beach Park I, II and III.

Table 2 presents the number of Azira sampled beach visits for each of the study beaches by residential zone.

Figure 2: Beach Visitation by Nighttime Location (by Beach) – (January 2019 to June 2024 Including Covid-19 Period Data)

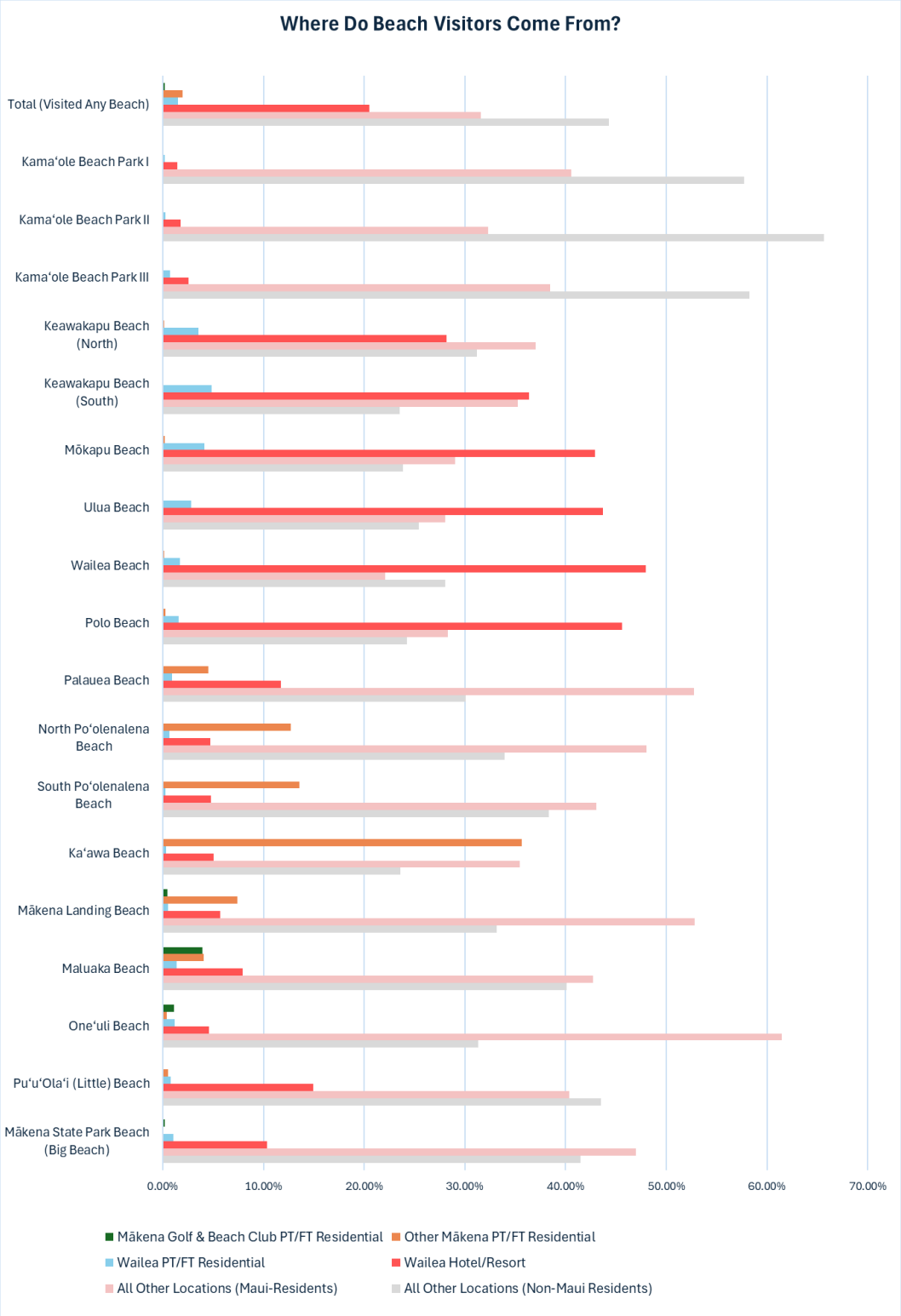


Figure 3: Beach Visitation by Nighttime Location (by Residential Zone) – (January 2019 to June 2024 Including Covid-19 Period Data)

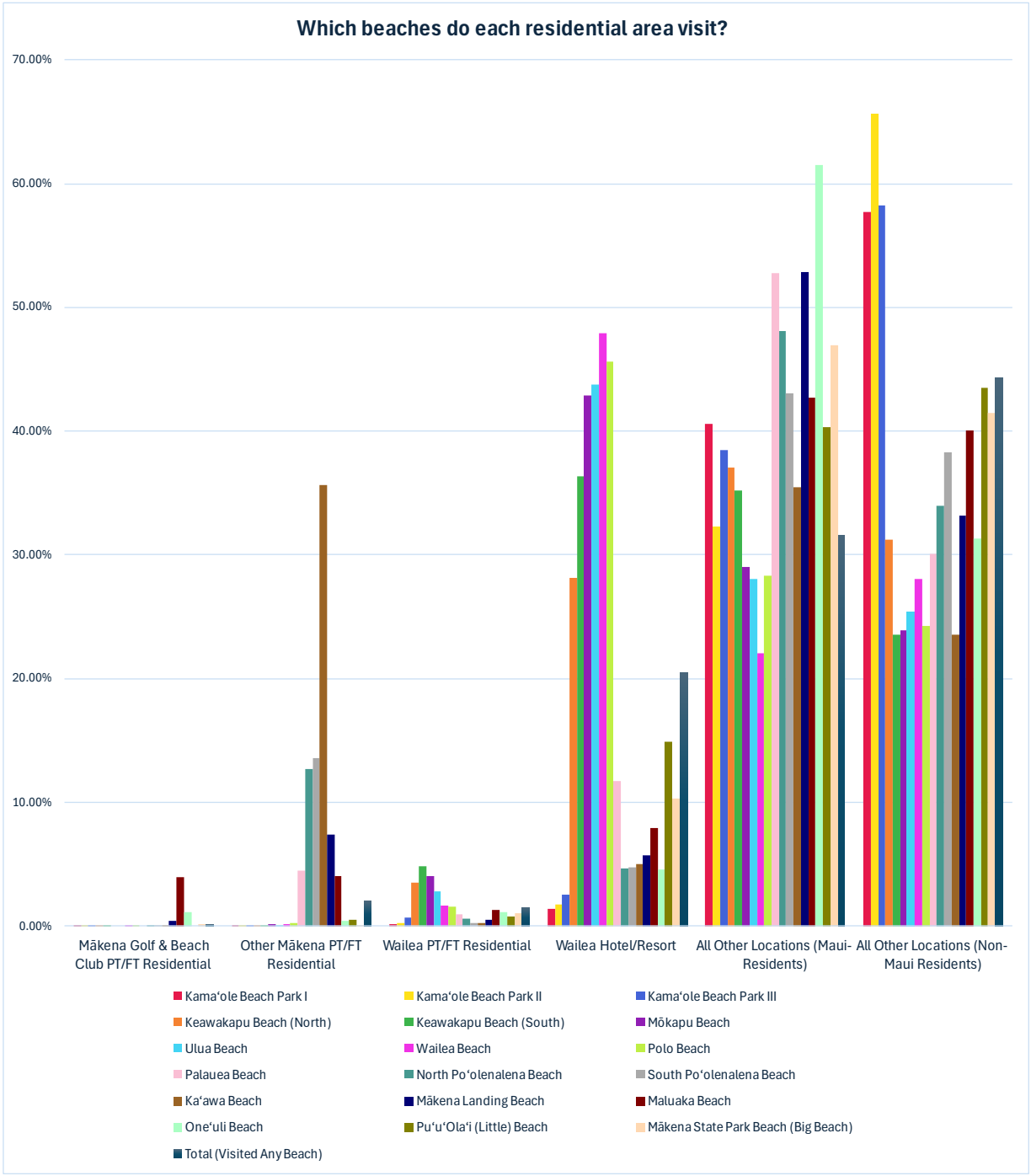


Table 2: Number of Visit Samples to Each Beach by Zone (January 2019 – June 2024 Including Covid-19 Period Data)

Study Beaches	Nighttime Location of Beach Visitors (All Azira Visits, Jan 2019-Jun 2024)						
	Makena Golf & Beach Club PT/FT Residential	Other Makena PT/FT Residential	Wailea PT/FT Residential	Wailea Hotel/ Resort	All Other Locations (Maui-Residents)	All Other Locations (Non-Maui Residents)	Total Beach Samples
1. Kama'ole Beach Park I	3	9	26	248	6,910	9,537	16,733
2. Kama'ole Beach Park II	4	6	21	166	2,615	5,466	8,278
3. Kama'ole Beach Park III	7	1	32	216	3,263	5,473	8,992
4. Keawakapu Beach (North)	4	22	670	5,574	7,273	6,142	19,685
5. Keawakapu Beach (South)	1	7	293	2,408	1,991	1,449	6,149
6. Mōkapu Beach	0	8	241	2,963	1,760	1,703	6,675
7. Ulua Beach	0	3	170	3,050	1,631	1,666	6,520
8. Wailea Beach	17	33	220	9,424	3,456	5,084	9,908
9. Polo Beach	1	19	82	3,082	1,590	1,542	6,316
10. Palauea Beach	0	123	29	353	1,573	856	2,934
11. North Po'olenalena Beach	1	343	13	128	1,284	946	2,715
12. South Po'olenalena Beach	4	948	21	336	3,243	2,849	7,401
13. Ka'awa Beach	1	588	6	80	482	348	1,505
14. Makena Landing Beach	22	388	25	300	2,958	1,754	5,447
15. Maluaka Beach	150	154	38	335	1,720	1,584	3,981
16. One'uli Beach	14	5	18	78	937	502	1,554
17. Pu'u'Ola'i (Little) Beach	0	11	21	307	986	997	2,322
18. Makena State Park Beach (Big Beach)	8	2	133	1,098	6,869	4,981	13,091
Total	***237***	***2,408***	***1,644***	***25,388***	***38,134***	***55,194***	***123,005***
% of Total	***0.19%***	***1.98%***	***1.49%***	***20.49%***	***31.57%***	***44.28%***	***100%***

1. This table shows all daily visits, over the entire period (Jan 2019-June 2024). This is intended to provide an order of magnitude of visitation for each beach. Since some days will have more visits than others, dividing the values in this table will not yield the same percentages as Table 1.
2. Adding the numbers up in each column will not give the total at the bottom since people can visit multiple beaches.

Estimate of Increased Number of Beach Visits

The Fehr & Peers team was asked to evaluate the incremental impact that 652 new residential units proposed within the Makena Golf & Beach area could have on beach visitation. Of these, 543 are generally expected to be occupied on a part-time basis, while the remaining 109 residences will be affordable units and generally occupied on a full-time basis. Because Azira data only represents a sample of mobile devices, it cannot be used independently to calculate or estimate the absolute number of persons visiting the beach or traveling in the area. Some individuals with devices may not have location services turned on, some people may not have a device, or may not have taken that device to the beach. That said, it is possible to correlate the number of samples to the existing number of PT/FT residential units and available traffic data to generally estimate the potential number of beach visitors from the proposed 543 Market units and 109 Workforce Housing units. This process is described below.

543 Market Units

It should be noted that the exact number of existing PT/FT residential units in the Makena area is not known due to the prevalence of short-term vacation rentals in the area that are offered in and amongst some of the condominium projects of the area. Accordingly, data from similar residential types from Wailea were used as a proxy for the Makena area. Currently, there are approximately 1,200 PT/FT units in the Wailea area between Kilohana Drive and Kaukahi Street. According to **Table 2**, there are roughly 1,644 Azira visits across all study beaches, indicating an average of approximately 1.37 visits per unit. Using this ratio and applying it to the Makena area, the addition of 543 new units in Makena Golf & Beach Club is projected to generate approximately 744 new Azira visits. Given that the dataset spans from 2019 to the end of June 2024 and includes 2,007 days, the new Azira visits per day would be approximately 744/2,007 = 0.37. However, the number of visits need to be correlated to the number of persons, and traffic data was used as a means of estimating this number.

According to the Traffic Volumes Highway Performance Monitoring System (HPMS) 2023 report published by the Hawai'i Department of Transportation (HDOT), the Annual Average Daily Traffic (AADT) in the Wailea-Makena area is 17,000 on Route 31 (Pi'ilani Highway) between MP 5.92 and 7.149, and 10,100 on Route 3135 (Wailea-Alanui Drive) between MP 0 and 1.339, totaling 27,100. The Office of Energy and Renewable Energy reports that the average number of people per household vehicle is 1.5. While not all passengers in these vehicles are associated with a beach visit, the volume can serve as a relational proxy and likely results in a conservative estimate of new beachgoers. Based on Azira data, the Makena PT/FT residential visit samples in 2023 was 999, leading to an estimated 27,100 * 1.5 / 999 ≈ 41 people per Azira visit.

Multiplying the new Azira visits per day (0.37) by the estimated number of people per Azira visit (41), we estimate an additional 15 beach visits per day. To distribute the estimated increase in beach visits across specific areas, we applied the same ratio derived from each beach's sample size of

visitor nighttime locations to the total nighttime location sample size of beach visitors. This was done for the Makena Golf & Beach Club Market Units (543 units) using the Makena Golf & Beach Club sample sizes (magenta boundary). Please note that this calculation assumes all road traffic is generated by PT/FT residents, providing a conservative estimate for each beach. In addition, we identified the peak visitation hours for PT/FT residents as 10 AM to 2 PM. Nearly 40% of visits were conducted during that period. Using this percentage, we can also estimate the projected increase in beach visitors during peak period (10 AM to 2 PM).

109 Workforce Housing Units

The same methodology described for the Makena Market Units was applied to estimate the beach visitation impact of the 109 additional workforce housing units. For this calculation, it was assumed that the workforce housing units would have characteristics similar to the "Wailea Other Nearby Residential Units" (depicted in gray shading on **Figure 1**). Currently, there are approximately 890 units in this category, generating roughly 3,063 Azira visits across all study beaches, or an average of 3.44 visits per unit.

Applying this ratio, the 109 new units are projected to generate approximately 375 new Azira visits. Over the dataset period (2019 to June 2024, or 2,007 days), this equates to about 0.19 new Azira visits per day.

To estimate the number of people associated with these visits, the same traffic volume (27,100 vehicles) and occupancy rate (1.5 persons per vehicle) were used. However, the relevant Azira sample size for this group in 2023 was 615, leading to an estimated 27,100 * 1.5 / 615 ≈ 66 people per Azira visit.

Multiplying the daily new Azira visits (0.19) by the estimated number of people per Azira visit (66) results in an estimated increase of approximately 12 additional beach visits per day. To distribute the estimated increase in beach visits across specific areas, we applied the same ratio derived from each beach's sample size of visitor nighttime locations to the total nighttime location sample size of beach visitors. This calculation was performed for the Makena Golf & Beach Club Workforce Housing Units (109 units) using the "All Other Locations (Maui Residents)" sample sizes.

Please note that this calculation assumes all road traffic is generated by nearby residential residents, providing a conservative estimate for each beach. As with the previous analysis, the peak visitation hours were identified as 3 PM to 7 PM, during which approximately 40% of visits occur. This percentage was used to estimate the projected increase in beach visitors during the peak period.

The results in **Table 3** show that the estimated increase in peak period beach visitors from the proposed 543 new Makena Golf & Beach Club Market units would be highest at Maluaka Beach with four (4) new peak period visitors, and a total of six (6) new visitors at all beaches. Furthermore, the highest estimated increase from the proposed 109 workforce housing units is two (2) additional daily visitors and one (1) peak period visitor at a single beach.

Table 3: Projected Increase in Beach Visitation with 543 New Makena Golf & Beach Club Market Units and 109 Workforce Housing Units - (Based on January 2019 – June 2024 Data Including Covid-19 Period)

Beach	543 Market Units		109 Workforce Housing Units	
	Estimated Daily Increase in Beachgoers[1]	Estimated Peak Period Increase in Beachgoers[1]	Estimated Daily Increase in Beachgoers[1]	Estimated Peak Period Increase in Beachgoers[1]
1. Kama'ole Beach Park I	0	0	2	1
2. Kama'ole Beach Park II	0	0	1	0
3. Kama'ole Beach Park III	1	0	1	1
4. Keawakapu Beach (North)	0	0	2	1
5. Keawakapu Beach (South)	0	0	1	0
6. Mōkapu Beach	0	0	1	0
7. Ulua Beach	0	0	1	0
8. Wailea Beach	1	1	1	1
9. Polo Beach	0	0	1	0
10. Palauea Beach	0	0	1	0
11. North Po'olenalena Beach	0	0	0	0
12. South Po'olenalena Beach	0	0	1	1
13. Ka'awa Beach	0	0	0	0
14. Makena Landing Beach	1	1	1	1
15. Maluaka Beach	10	4	1	0
16. One'uli Beach	1	0	0	0
17. Pu'u'Ola'i (Little) Beach	0	0	0	0
18. Makena State Park Beach (Big Beach)	1	0	2	1
Total[2]	***15***	***6***	***17***	***7***

1. The numbers in the table have been rounded to the nearest whole number.
2. Summing up the values in the total column results in slightly higher values compared to earlier calculations in the report, as individual visitors may have made multiple visits to a beach. The initial methodology accounted for each unique device only once to more accurately represent distinct visitation patterns.

Additional Detailed Information from Azira Data Evaluation

Figures 4 through 6 illustrate the average number of beach visit samples by residents and guests of the Makena Golf & Beach Club PT/FT housing in the magenta bounded zones, presented by week, month, and year, respectively.

Figure 4: Weekly Average Number of Beach Visit Samples by Makena Golf & Beach Club PT/FT Residents

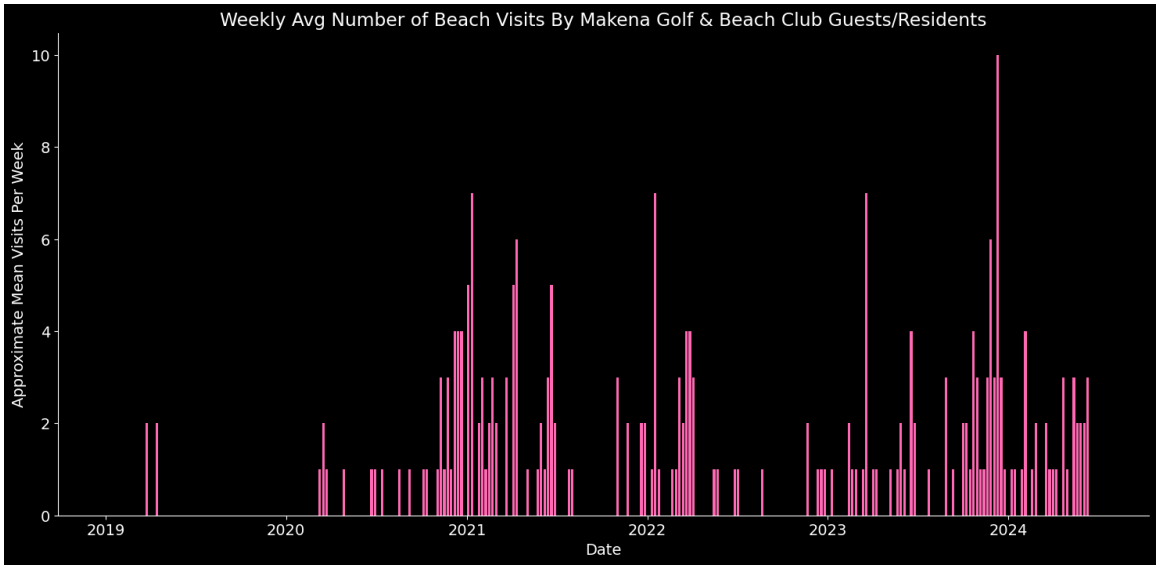


Figure 5: Monthly Average Number of Beach Visit Samples by Makena Golf & Beach Club PT/FT Residents

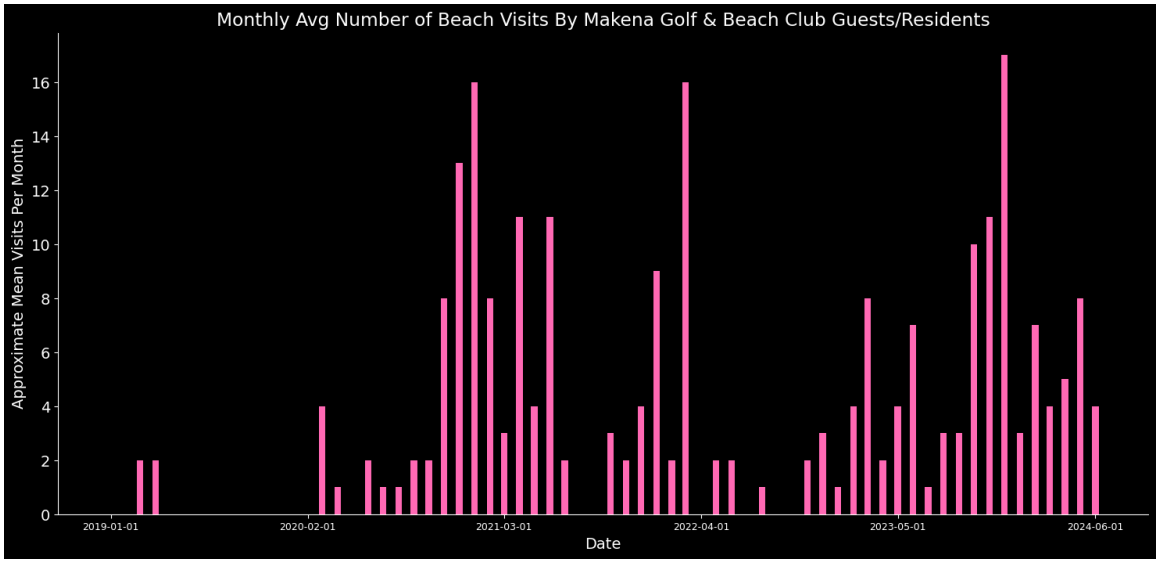


Figure 6: Yearly Average Number of Beach Visit Samples by Makena Golf & Beach Club PT/FT Residents

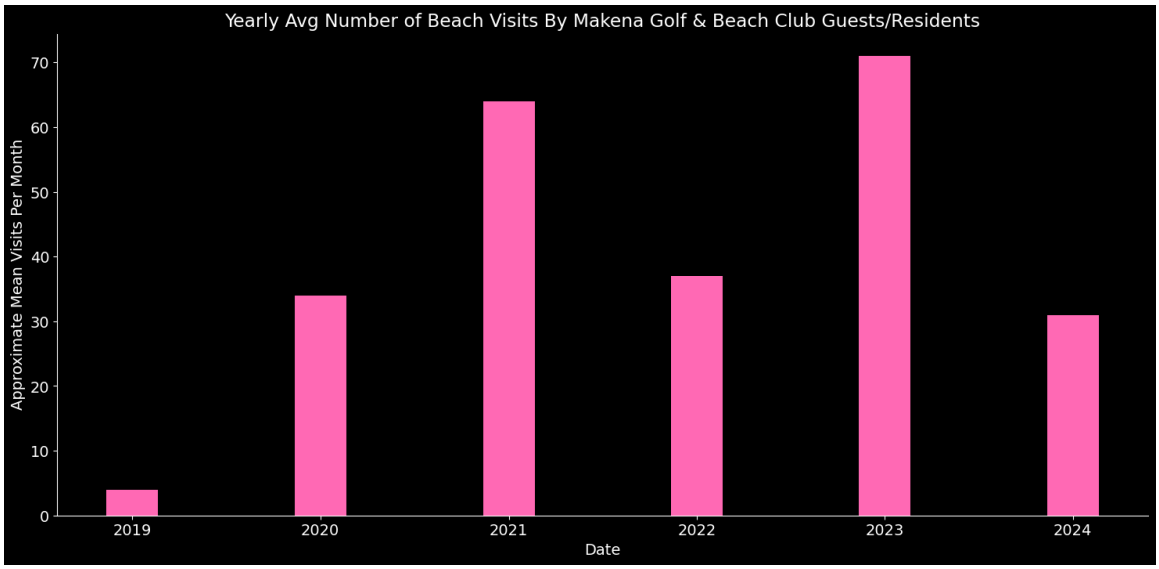


Figure 7 presents the temporal distribution of visit samples at each beach and the proportion from Makena Golf & Beach Club PT/FT residents, Other Makena PT/FT residents, Wailea PT/FT residents, Wailea hotel/resort guests, and other visitors from outside the immediate study area, categorized as Maui residents and Non-Maui residents.

Figure 7: Temporal Distribution of Visit Samples for Each Zone

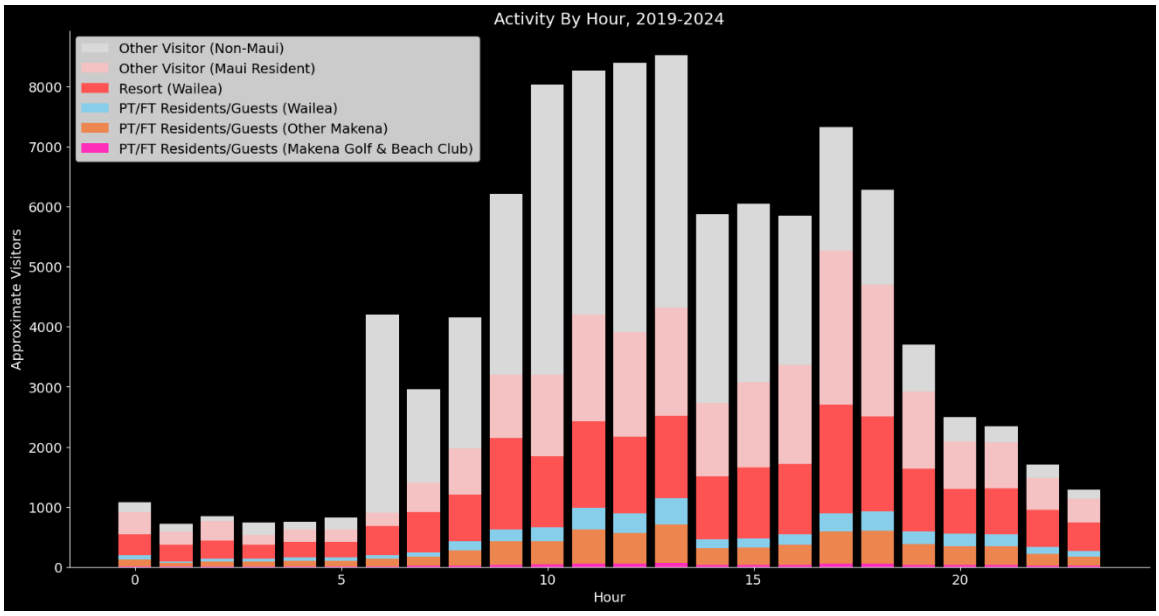
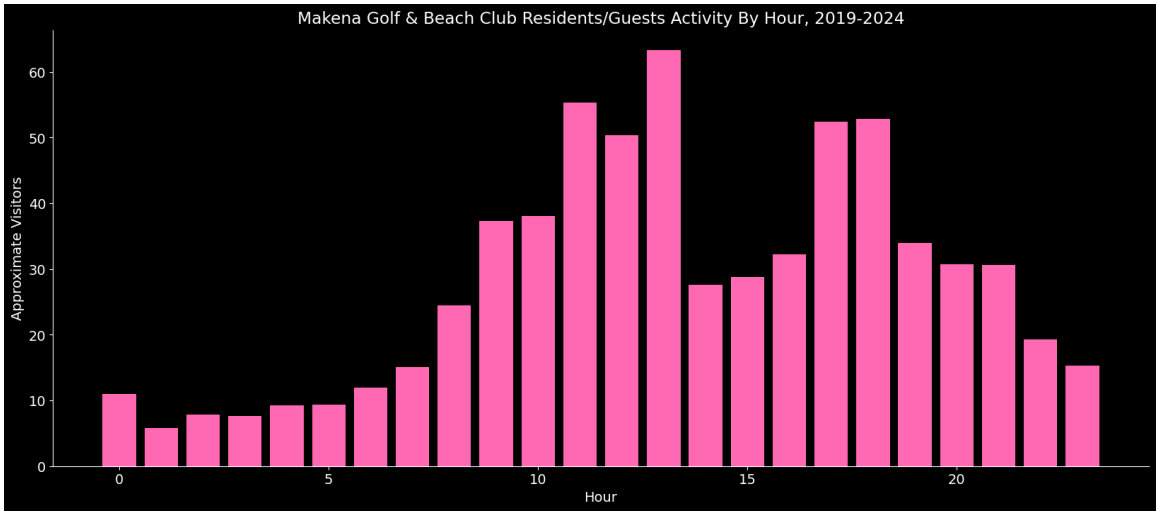


Figure 8 provides the same information as **Figure 7** for Makena Golf & Beach Club PT/FT residents and guests (i.e., in the magenta zones) but expands the vertical scale to better illustrate the hourly variation of visit samples from this group only over the 2019 to 2024 study period.

Figure 8: Temporal Distribution of Visits by Makena Golf & Beach Club PT/FT Residents/Guests Only



Figures 9.a through 9.c present heatmaps of beach visitors based on their home locations, where they spend the majority of the year. For **Figure 9.a**, for example, Maui residents that were sampled at one of the 18 study beaches primarily live in the Kihei and other South Maui areas, with others living generally in the Kahului and Wailuku communities. In **Figure 9.c**, the greatest proportion of beach visitors come from the west coast of the Mainland with additional concentrations in Phoenix, Dallas-Ft. Worth, Chicago, New York City, and Rocky Mountain cities.

Figure 9.a: Beach Visitor Maui Home Locations

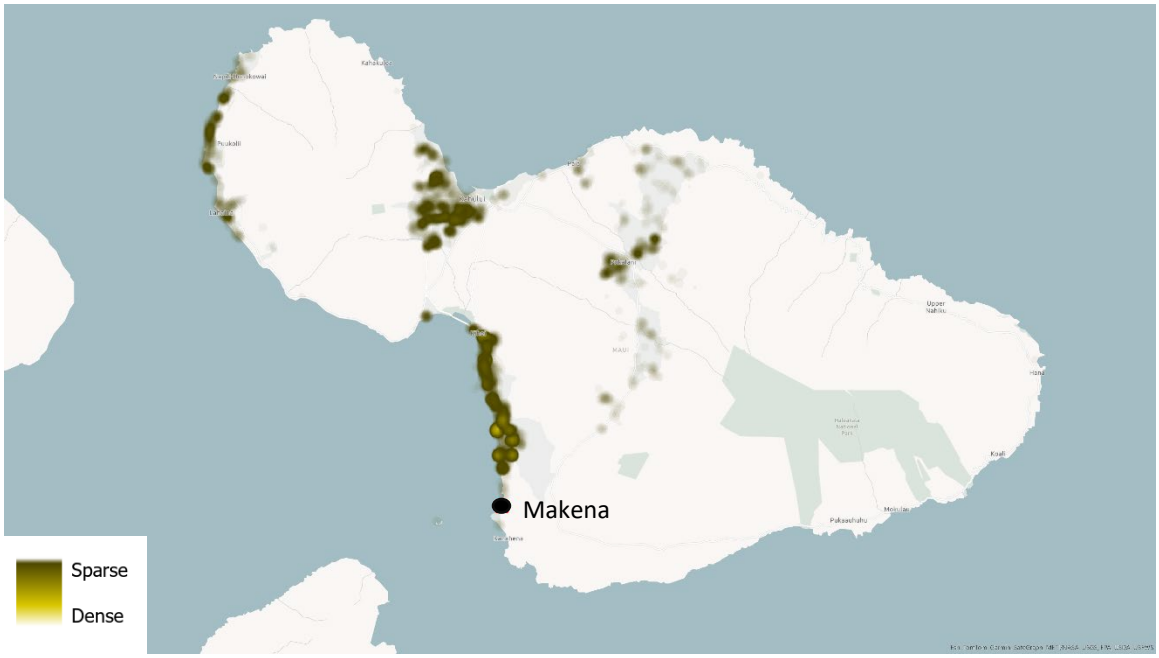


Figure 9.b: Beach Visitor State of Hawai'i Home Locations

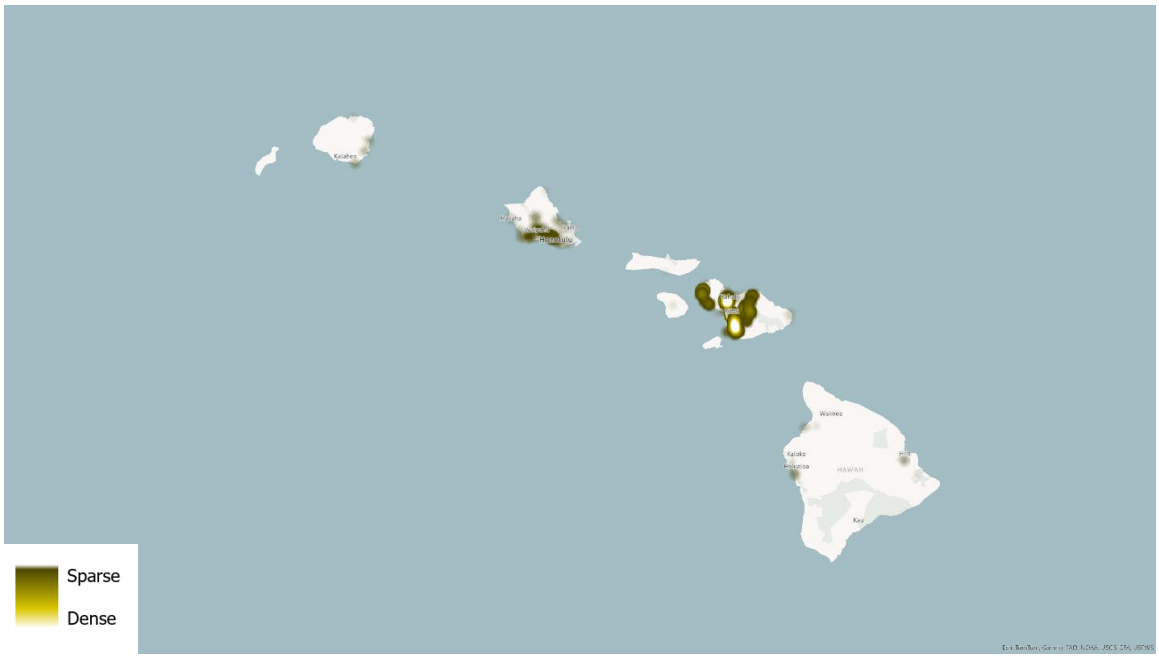


Figure 9.c: Beach Visitor U.S. Home Locations

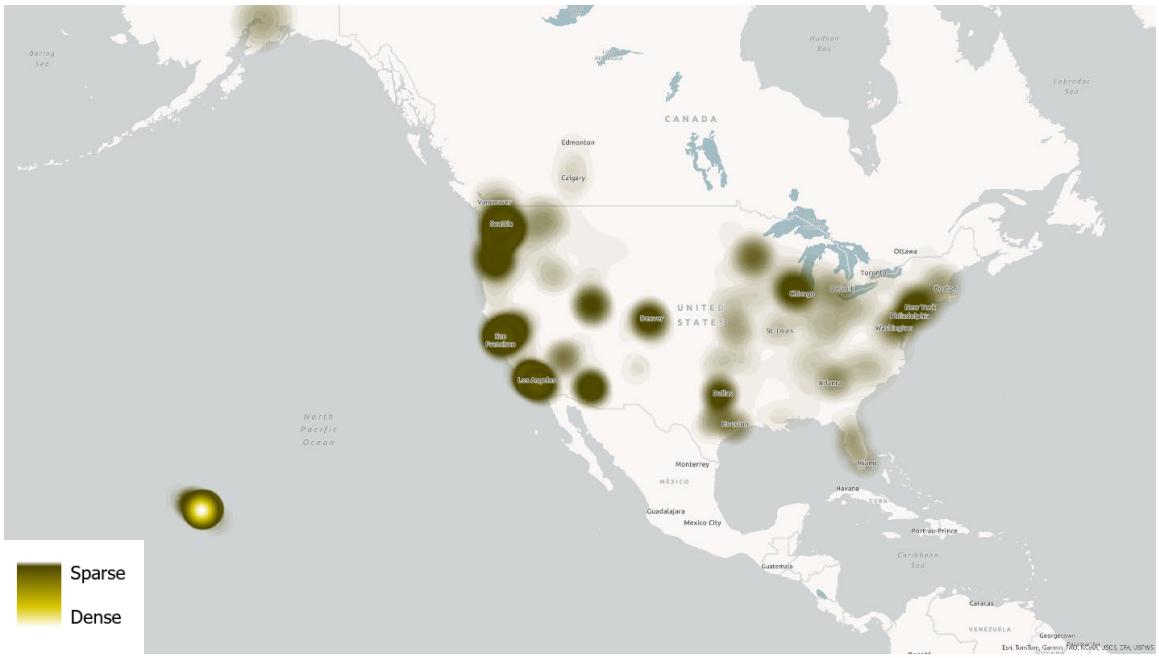


Figure 10 illustrates the variation in total visitation at all study beaches throughout the nearly 5-year period and compares visitation during peak months to the average months. From the data, total visitation is nearly 13% higher during the peak months (December – April) compared to the overall average. Among all months, September has the lowest average visitation (2,217), while December has the highest (3,925), resulting in a difference of 1,708 visits. The largest spikes in the data are anomalies and could be caused by a highly attended event(s), holidays, or other issues. The largest spikes in the data are anomalies and could be caused by a highly attended event(s), holidays, or other issues.

Figure 10: Estimated Daily Total Beach Visitation (Peak Months vs. Average)

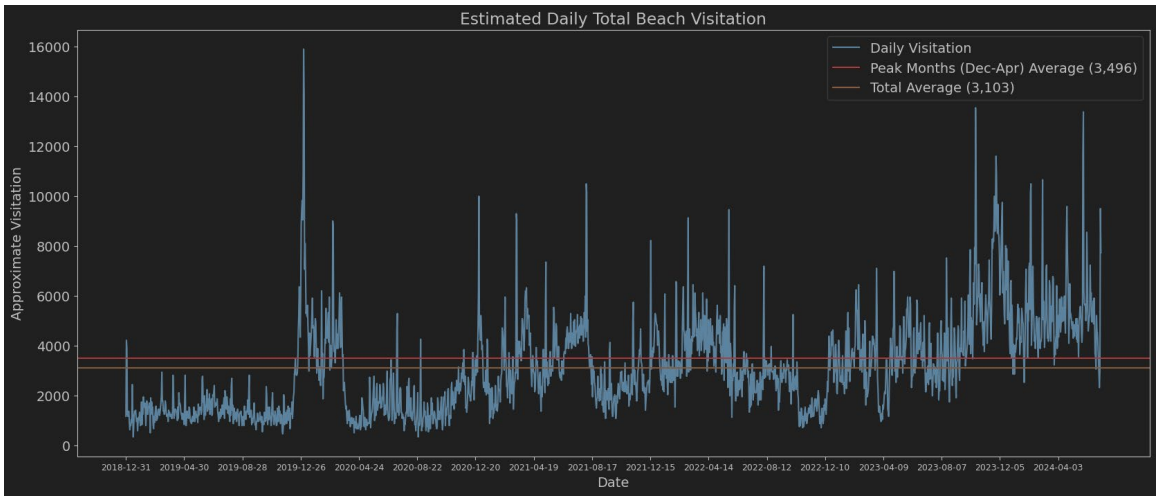


Figure 11 presents the same data as **Figure 10** but provides a detailed breakdown of beach visitation by Makena PT/FT residents, Wailea PT/FT residents, Wailea resort guests, and other visitors from outside the immediate study area, categorized as Maui residents and Non-Maui residents. As shown in the graph, Maui residents and visitors from outside the Makena area are the dominant beach visitor groups.

Figure 11: Estimated Daily Total Beach Visitation by Resident Area

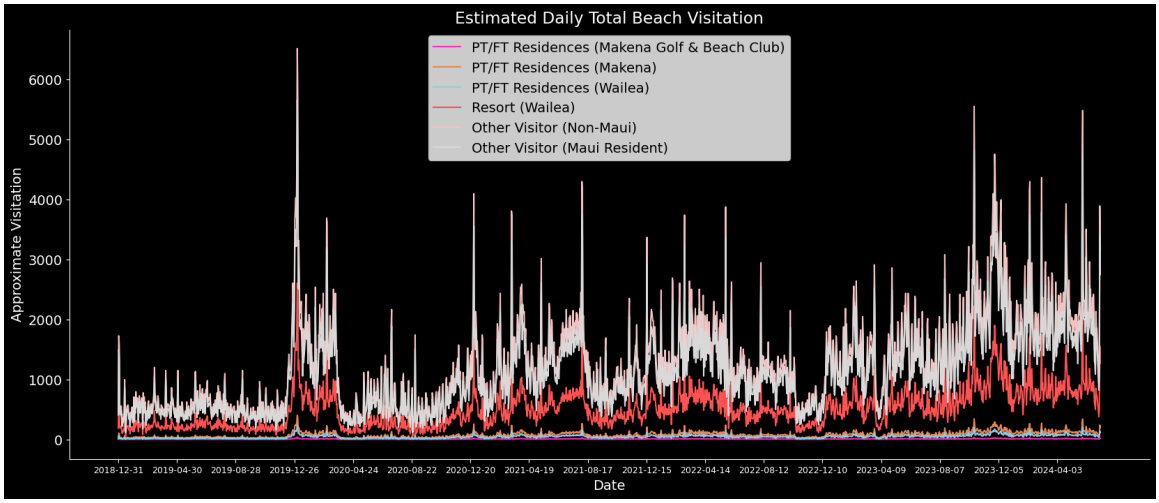
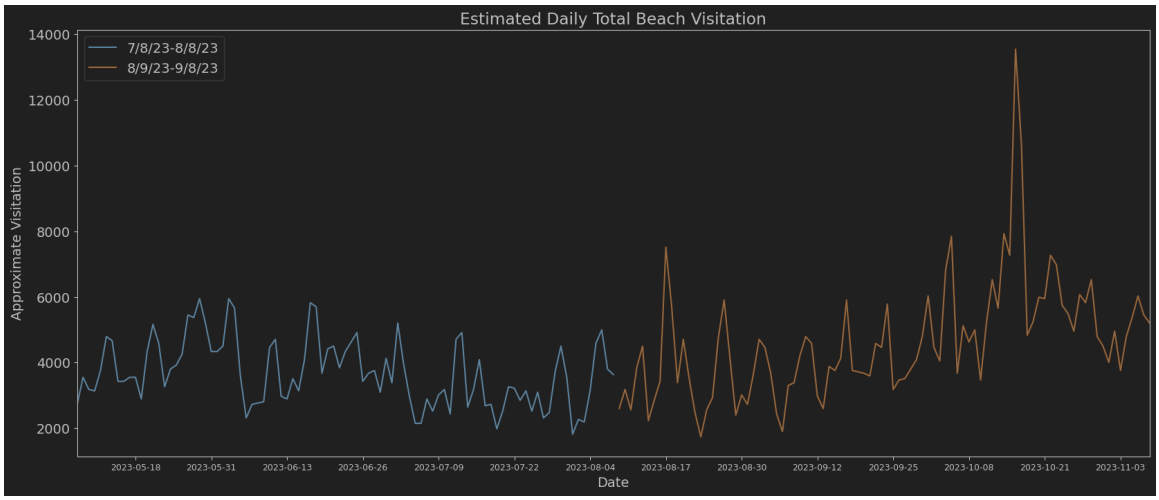


Figure 12 presents an analysis of daily beach visitation in the period surrounding the Maui wildfires. The data contrasts visitation for the month preceding the wildfires (July 8, 2023, to August 8, 2023) with the month following the event (August 9, 2023, to September 8, 2023). For broader context, the average daily visitation over the three months prior to the wildfires was 3,689, compared to 4,642 in the three months following the event.

Figure 12: Estimated Daily Total Beach Visitation (Before and After Maui Wildfires)



Figures 13.a and 13.b compare beach visitation during the COVID period (Year 2020) with post-COVID visitation (Year 2022). As illustrated in the figures, daily visitation post-COVID is nearly twice that of the COVID period.

Figure 13.a: Estimated Daily Total Beach Visitation During COVID (Year 2020)

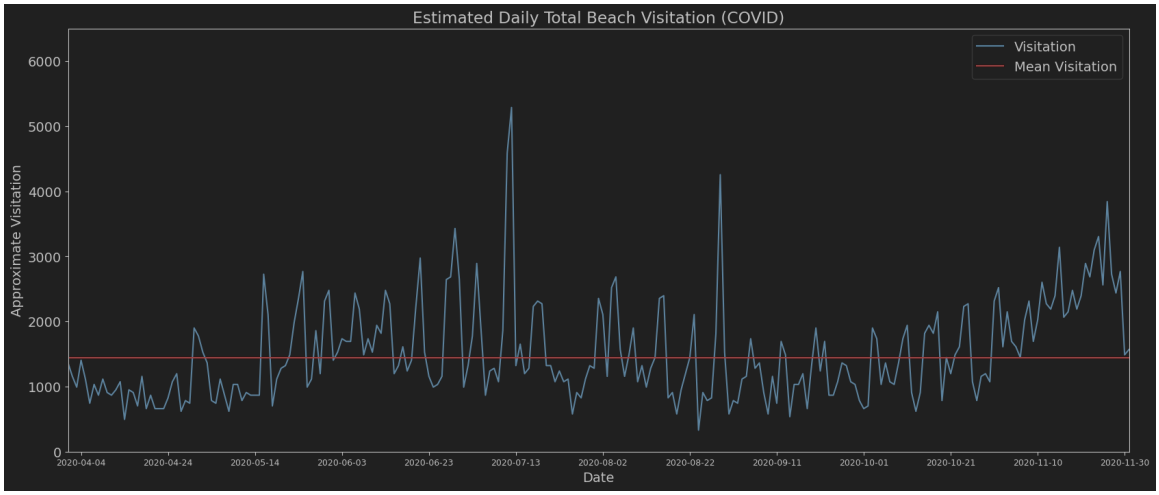
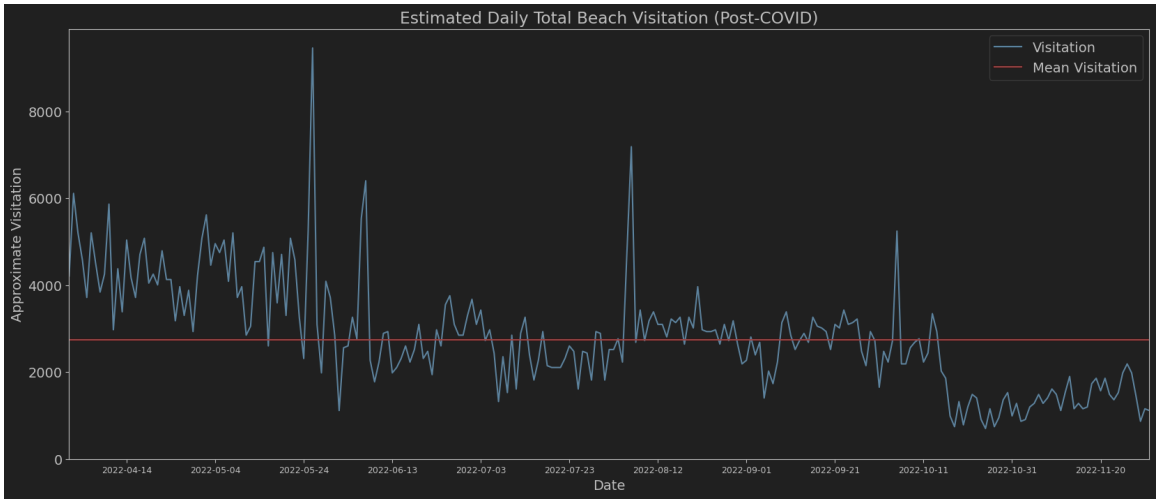


Figure 13.b: Estimated Daily Total Beach Visitation Post-Covid (Year 2022)



Figures 14.a and 14.b compare the daily total beach visitation for the first seven months of 2019 and the first seven months of 2023. This comparison eliminates the effect of the August 2023 Maui wildfire. Note that the 2019 visitation numbers are based on 7,626 unique devices (for the whole year), while the 2023 data are based on 21,423 devices. As Azira is likely collecting data from more and more phones over time, we believe the 2019 numbers may be less representative of actual beach visitation during that year. Please note that the increasing number of devices captured over the years does not necessarily translate to a proportional increase in the number of actual visits.

Figure 14.a: Estimated Daily Total Beach Visitation – January to July 2019

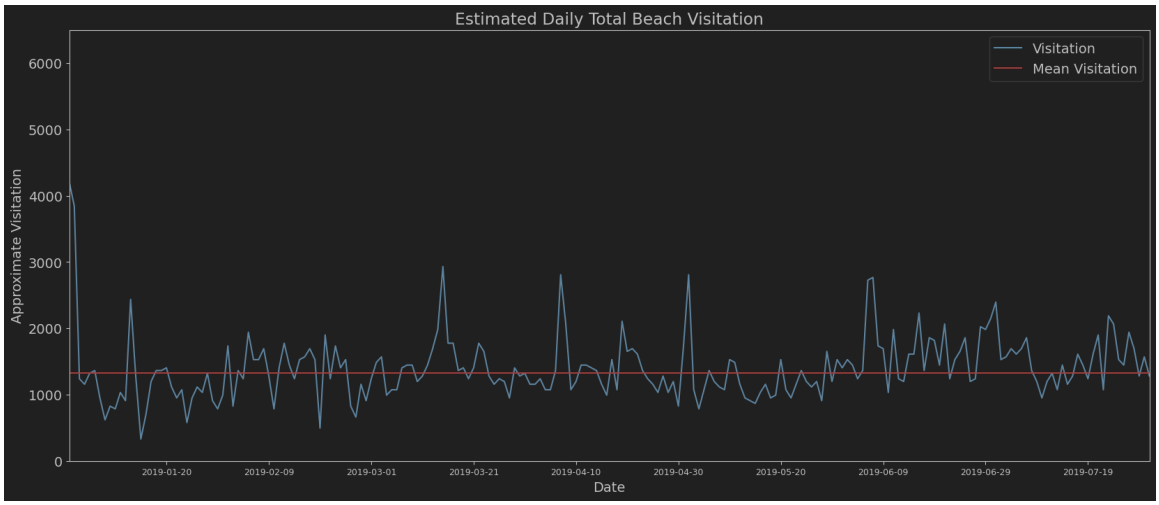


Figure 14.b: Estimated Daily Total Beach Visitation – January to July 2023

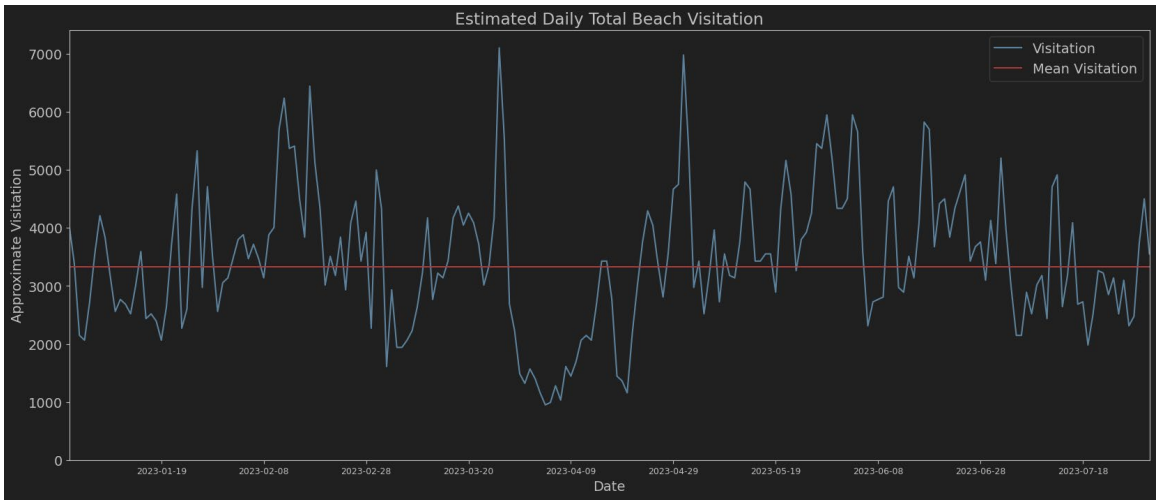


Figure 15 highlights the geographic location of all beach visitors two hours before and after their visit to a study beach(es). While most locations are in the Kihei and Wailea area, visitors travel to various locations in the Kahului-Wailuku communities, as well as to the west side, but to a lesser degree.

Figure 15: Beach Visitor Locations Two Hours Before and After Beach Visit (All Visitors)



Table 4 presents the aggregated percentages of beachgoers who visited various places two hours before and after their beach visit. These percentages are derived by dividing the total visits to each category between January 1, 2019, and June 30, 2024, by the total number of beach visitor samples during the same period, which was 277,328. Azira data provided specific locations or establishments, and these were aggregated into various land use categories for use in an economic analysis if needed.

Table 4: Beach Visitor Land Use Stops Two Hours Before and After Beach Visit (All Visitors)

Place Category	Percentage
Retail	16.10%
Gas Station/Auto Repair	9.00%
Fast Food	6.25%
Grocery	6.50%
Restaurant	6.06%
Parks	3.69%
Convenience	1.33%
Attraction	0.71%
Other	3.51%

Figure 16 and **Table 5** provide the same information as **Figure 15** and **Table 4**, but specifically for Makena Golf & Beach Club FT/PT residents and guests (magenta zones only).

Figure 16: Beach Visitor Locations Two Hours Before and After Beach Visit (Makena Golf & Beach Club PT/FT Residents)



Table 5: Beach Visitor Land Use Stops Two Hours Before and After Beach Visit (Makena Golf & Beach Club PT/FT Residents)

Place Category	Percentage
Retail	14.94%
Gas Station/Auto Repair	12.64%
Fast Food	3.45%
Grocery	5.75%
Restaurant	2.30%
Parks	2.30%
Convenience	1.15%
Attraction	1.15%
Other	4.60%

2. Non-COVID Period Analysis (Year 2020 Excluded)

Distribution of Beach Visits

For this analysis, the nighttime location of unique devices during the evening (8 PM – 5 AM) was identified for the entire study period based on a daily average. A device was considered to have made a beach visit if it was observed on the beach for at least 15 minutes. **Table 6** contains the percentage of detected visits of visitors whose devices' nighttime locations are located in each residential or hotel/resort area. In addition to the percentage of visitors whose nighttime locations are in the Makena Golf & Beach Club PT/FT residential units (within the magenta boundaries on **Figure 1**), the other columns in **Table 6** contain the percentages of people staying in other Makena PT/FT residential units (orange boundaries), Wailea PT/FT residential units (blue boundaries), Wailea hotel/resort areas (red boundaries), and from other locations categorized by Maui residents and non-Maui residents. Non-Maui residents includes guests staying at other hotels/resorts on Maui and any day visitors to the island from other Hawaiian islands and outside Hawai'i.

To help illustrate the limited proportion of beach visits originating from the PT/FT residential units, we have graphed the data from **Table 6**. **Figure 17** illustrates the proportion of visitors at each beach location based on their nighttime location origin, and **Figure 18** shows each residential area and the proportional distribution to each beach.

In addition, individual beach visitation trends by nighttime location are presented in **Appendix A**.

The key finding from the number of visitor samples listed in **Table 6** and illustrated on **Figure 17** is that the proportion of beach visitors from existing Makena Golf & Beach Club PT/FT residences is nominal compared to other visitor origins. Makena Golf & Beach Club PT/FT residents/guests have the highest sample size visitation at the Maluaka Beach, Makena Landing Beach, and Wailea Beach, as shown in **Table 7**.

The beach with the highest proportion of Makena Golf & Beach Club PT/FT residents and/or guests is Maluaka Beach, and those residents/guests represent just under five (5) percent of the total visitors. Of the remaining visitors to this beach, roughly 95 percent come from (in descending order): hotel/resort guests from elsewhere on the island, other Maui residents, Wailea hotels/resorts, other Makena PT/FT residents/guests, and Wailea PT/FT residential areas.

At all beaches studied, Makena PT/FT residents/guests make up just 2.08 percent of visitors—equivalent to fewer than three (3) out of every 100 beach visitors. Of these, Makena Golf & Beach Club PT/FT residents/guests account for only 0.19 percent, meaning typically less than one (1) visitor per 500, while other Makena PT/FT residents/guests make up approximately 1.89 percent, or about two (2) visitors per 100. This finding is expected in that the primary reason Makena Golf & Beach Club owners tend not to visit the beaches is that the club offers a private amenity program, including pools, spas, fitness facilities, food and beverage (F&B), and golf. With all the onsite amenities available, their beach visits are mainly limited to Maluaka Beach.

From **Figure 18**, the Azira data samples show that the beaches with the highest proportion of Wailea hotel/resort guests are those immediately adjacent to the resort properties including Mōkapu, Wailea, Ulua and Polo Beaches. The beaches with the highest proportion of Maui residents from outside Makena and Wailea include One'uli, Makena, and Palauea Beaches. Lastly, beaches with the highest proportion of non-Maui residents staying elsewhere on the island include Kama'ole Beach Park I, II and III.

Table 6: Percentage of Visit Samples to Each Beach by Residential Zone (January 2019 – June 2024 Excluding Covid-19 Period Data)

Study Beaches	Nighttime Location of Beach Visitors (Daily Average)						
	Makena Golf & Beach Club PT/FT Residential	Other Makena PT/FT Residential	Wailea PT/FT Residential	Wailea Hotel/ Resort	All Other Locations (Maui-Residents)	All Other Locations (Non-Maui Residents)	Total
1. Kama'ole Beach Park I	0.03%	0.06%	0.19%	1.56%	36.23%	61.93%	100%
2. Kama'ole Beach Park II	0.02%	0.05%	0.25%	1.84%	29.82%	68.02%	100%
3. Kama'ole Beach Park III	0.06%	0.00%	0.47%	2.65%	34.78%	62.04%	100%
4. Keawakapu Beach (North)	0.02%	0.09%	3.19%	30.05%	33.84%	32.81%	100%
5. Keawakapu Beach (South)	0.01%	0.08%	4.66%	37.89%	32.37%	24.99%	100%
6. Mōkapu Beach	0.00%	0.18%	3.37%	44.26%	26.14%	26.05%	100%
7. Ulua Beach	0.00%	0.04%	2.34%	45.15%	25.70%	26.77%	100%
8. Wailea Beach	0.07%	0.16%	1.02%	50.07%	18.66%	30.02%	100%
9. Polo Beach	0.01%	0.24%	1.34%	48.47%	25.33%	24.61%	100%
10. Palauea Beach	0.00%	4.89%	0.96%	11.77%	49.53%	32.85%	100%
11. North Po'olenalena Beach	0.04%	10.40%	0.36%	4.46%	47.50%	37.24%	100%
12. South Po'olenalena Beach	0.05%	12.83%	0.23%	5.03%	41.53%	40.33%	100%
13. Ka'awa Beach	0.00%	37.69%	0.26%	5.76%	32.38%	23.91%	100%
14. Makena Landing Beach	0.32%	6.63%	0.50%	6.15%	50.82%	35.59%	100%
15. Maluaka Beach	4.14%	4.01%	1.29%	8.55%	38.57%	43.44%	100%
16. One'uli Beach	0.94%	0.08%	1.10%	4.83%	60.47%	32.58%	100%
17. Pu'u'Ola'i (Little) Beach	0.00%	0.54%	0.66%	14.02%	39.87%	44.90%	100%
18. Makena State Park Beach (Big Beach)	0.13%	0.03%	1.08%	10.67%	44.15%	43.95%	100%
Total	***0.19%***	***1.89%***	***1.28%***	***21.74%***	***27.31%***	***47.59%***	***100%***

1. The data in this table weighs each day equally.
2. Totals by beach are based on combined data and are not the sum of each row.

Figure 17: Beach Visitation by Nighttime Location (by Beach) – (January 2019 – June 2024 Excluding Covid-19 Period Data)

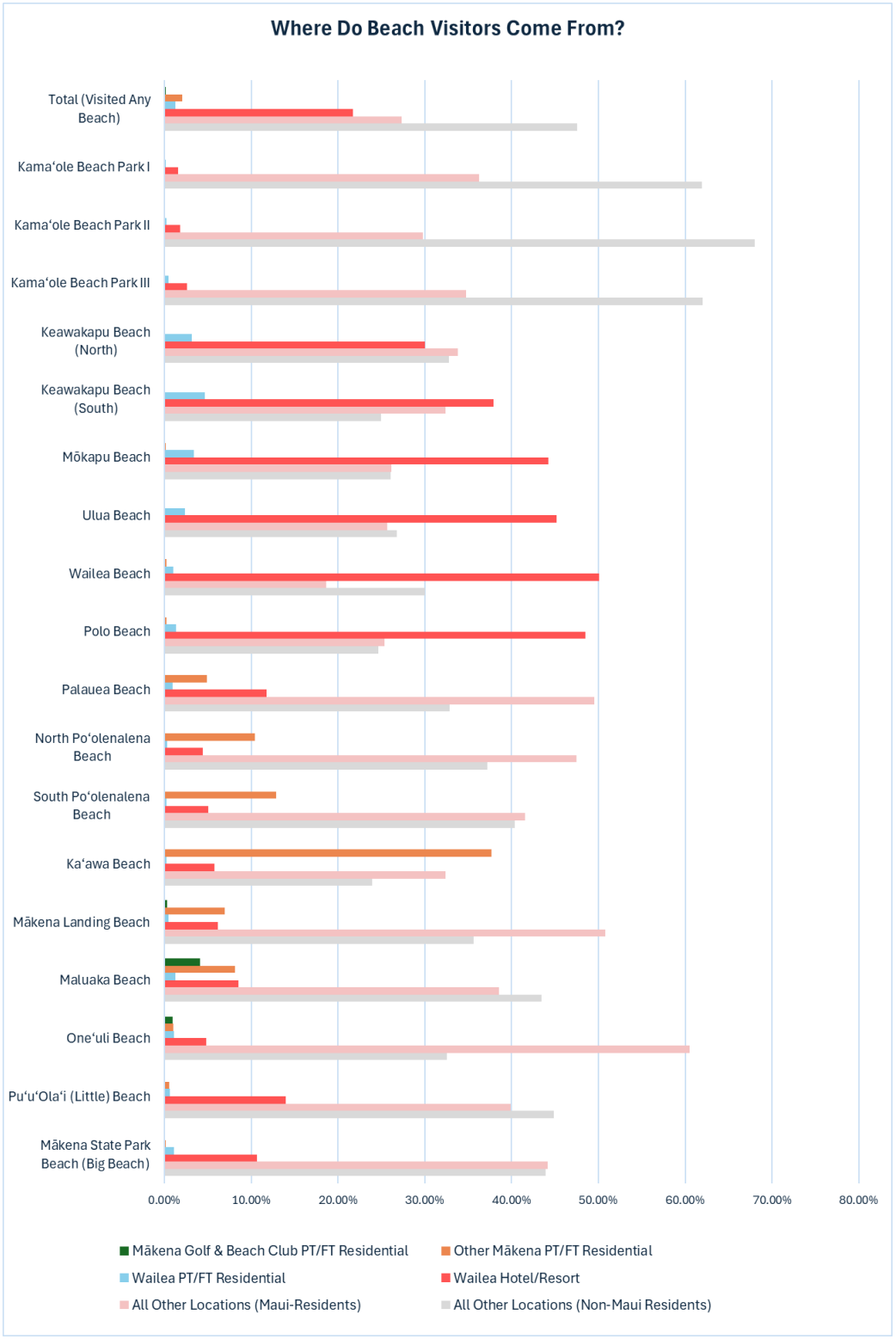


Figure 18: Beach Visitation by Nighttime Location (by Residential Zone) – (January 2019 – June 2024 Excluding Covid-19 Period Data)

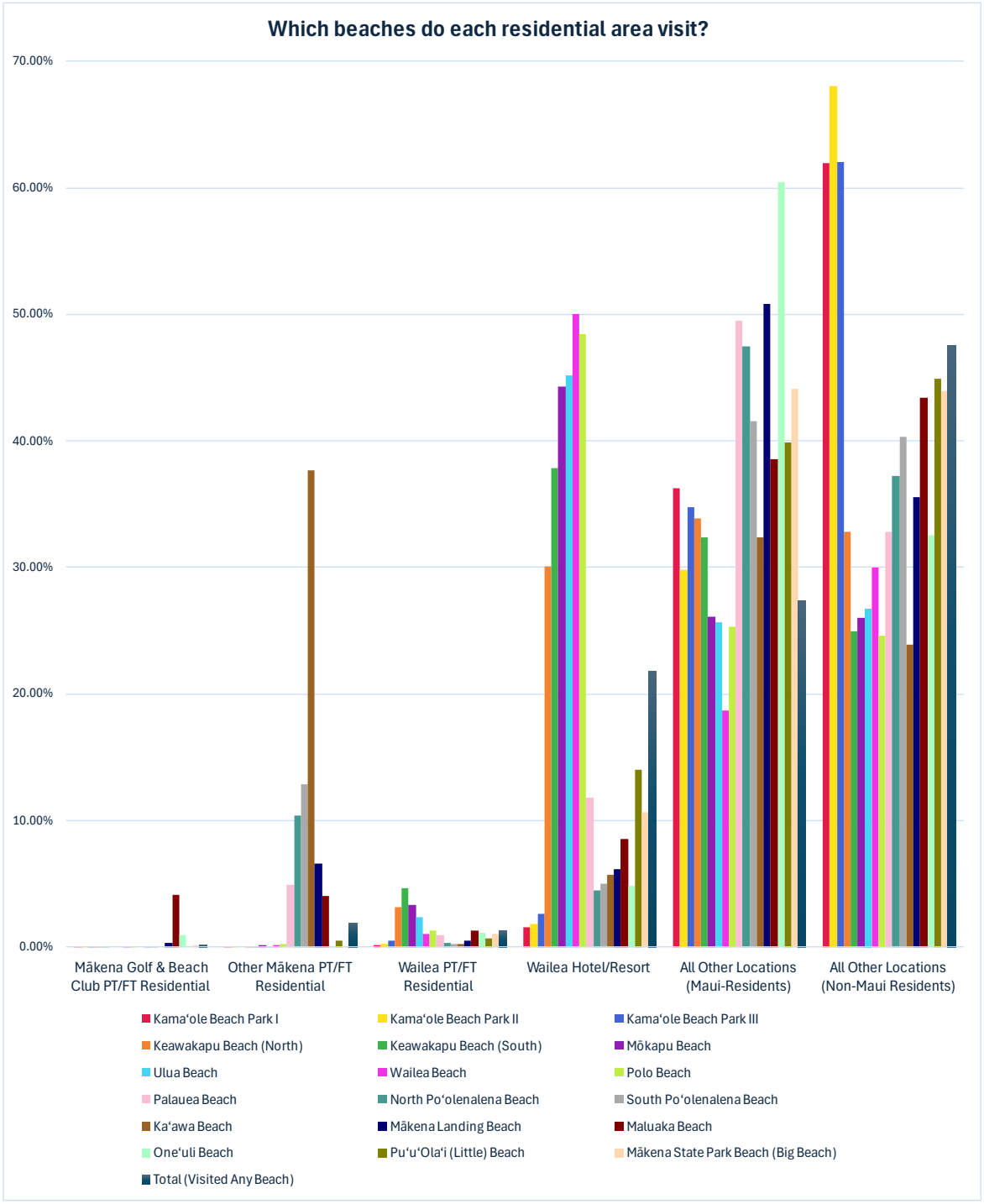


Table 7 presents the number of Azira sampled beach visits for each of the study beaches by residential zone.

Table 7: Number of Visit Samples to Each Beach by Zone, January 2019 - June 2024, excluding the year 2020

Study Beaches	Nighttime Location of Beach Visitors (All Azira Visits, January 2019 - June 2024, excluding the year 2020)						
	Makena Golf & Beach Club PT/FT Residential	Other Makena PT/FT Residential	Wailea PT/FT Residential	Wailea Resort	All Other Locations (Maui Residents)	All Other Locations (Non-Maui Residents)	Total Beach Samples
1. Kama'ole Beach Park I	3	6	21	221	5,786	8,352	14,389
2. Kama'ole Beach Park II	3	6	18	148	2,274	4,836	7,285
3. Kama'ole Beach Park III	7	0	24	197	2,802	5,015	8,045
4. Keawakapu Beach (North)	3	18	529	4,827	5,971	5,245	16,593
5. Keawakapu Beach (South)	1	7	240	2,090	1,667	1,281	5,286
6. Mōkapu Beach	0	7	186	2,575	1,463	1,566	5,797
7. Ulua Beach	0	3	127	2,604	1,342	1,467	5,543
8. Wailea Beach	13	32	169	8,091	2,954	4,648	15,907
9. Polo Beach	1	16	64	2,610	1,248	1,318	5,257
10. Palauea Beach	0	110	24	284	1,246	754	2,418
11. North Po'olenalena Beach	1	247	8	99	1,077	865	2,297
12. South Po'olenalena Beach	3	800	16	298	2,809	2,551	6,477
13. Ka'awa Beach	0	535	5	78	372	308	1,298
14. Makena Beach	15	306	20	270	2,413	1,570	4,594
15. Maluaka Beach	136	132	34	308	1,411	1,461	3,482
16. One'uli Beach	12	1	15	76	835	471	1,410
17. Pu'u'Ola'i (Little) Beach	0	10	17	255	830	856	1,968
18. Makena State Park Beach (Big Beach)	5	1	109	977	5,537	4,394	11,023
Total	***203***	***2,028***	***1,336***	***22,068***	***31,124***	***49,569***	***106,328***
% of Total	***0.19%***	***1.89%***	***1.28%***	***21.74%***	***27.31%***	***47.59%***	***100%***

1. This table shows all daily visits, over the entire period (Jan 2019-June 2024, excluding the year 2020). This is intended to provide an order of magnitude of visitation for each beach. Since some days will have more visits than others, dividing the values in this table will not yield the same percentages as Table 7.
2. Adding the numbers up in each column will not give the total at the bottom since people can visit multiple beaches.

Estimate of Increased Number of Beach Visits

The Fehr & Peers team was asked to evaluate the incremental impact that 652 new residential units proposed within the Makena Golf & Beach area could have on beach visitation. Of these, 543 are generally expected to be occupied on a part-time basis, while the remaining 109 residences will be affordable units and generally occupied on a full-time basis. Because Azira data only represents a sample of mobile devices, it cannot be used independently to calculate or estimate the absolute number of persons visiting the beach or traveling in the area. Some individuals with devices may not have location services turned on, some people may not have a device, or may not have taken that device to the beach. That said, it is possible to correlate the number of samples to the existing number of PT/FT residential units and available traffic data to generally estimate the potential number of beach visitors from the proposed 543 Market units and 109 Workforce Housing units. This process is described below.

543 Market Units

It should be noted that the exact number of existing PT/FT residential units in the Makena area is not known due to the prevalence of short-term vacation rentals in the area that are offered in and amongst some of the condominium projects of the area. Accordingly, data from similar residential types from Wailea were used as a proxy for the Makena area. Currently, there are approximately 1,200 PT/FT units in the Wailea area between Kilohana Drive and Kaukahi Street. According to **Table 7**, there are roughly 1,336 Azira visits across all study beaches, indicating an average of approximately 1.11 visits per unit. Using this ratio and applying it to the Makena area, the addition of 543 new units in Makena Golf & Beach Club is projected to generate approximately 605 new Azira visits. Given that the dataset spans from 2019 to the end of June 2024, excluding the year 2020, and includes 1,642 days, the new Azira visits per day would be approximately 605/1,642 = 0.37. However, the number of visits need to be correlated to the number of persons, and traffic data was used as a means of estimating this number.

According to the Traffic Volumes Highway Performance Monitoring System (HPMS) 2023 report published by the Hawai'i Department of Transportation (HDOT), the Annual Average Daily Traffic (AADT) in the Wailea-Makena area is 17,000 on Route 31 (Pi'ilani Highway) between MP 5.92 and 7.149, and 10,100 on Route 3135 (Wailea-Alanui Drive) between MP 0 and 1.339, totaling 27,100. The Office of Energy and Renewable Energy reports that the average number of people per household vehicle is 1.5. While not all passengers in these vehicles are associated with a beach visit, the volume can serve as a relational proxy and likely results in a conservative estimate of new beachgoers. Based on Azira data, the Makena PT/FT residential visit samples in 2023 was 999, leading to an estimated 27,100 * 1.5 / 999 ≈ 41 people per Azira visit.

Multiplying the new Azira visits per day (0.37) by the estimated number of people per Azira visit, we estimate an additional 15 beach visits per day. To distribute the estimated increase in beach visits across specific areas, we applied the same ratio derived from each beach's sample size of

visitor nighttime locations to the total nighttime location sample size of beach visitors. This was done for the Makena Golf & Beach Club Market Units (543 units) using the Makena Golf & Beach Club sample sizes (magenta boundary). Please note that this calculation assumes all road traffic is generated by PT/FT residents, providing a conservative estimate for each beach. In addition, we identified the peak visitation hours for PT/FT residents as 10 AM to 2 PM. Nearly 40% of visits were conducted during that period. Using this percentage, we can also estimate the projected increase in beach visitors during peak period (10 AM to 2 PM).

109 Workforce Housing Units

The same methodology described for the Makena Market Units was applied to estimate the beach visitation impact of the 109 additional workforce housing units. For this calculation, it was assumed that the workforce housing units would have characteristics similar to the "Wailea Other Nearby Residential Units" (depicted in gray shading on **Figure 1**). Currently, there are approximately 890 units in this category, generating roughly 2,413 Azira visits across all study beaches, or an average of 2.71 visits per unit.

Applying this ratio, the 109 new units are projected to generate approximately 296 new Azira visits. Over the dataset period (2019 to June 2024, excluding the year 2020, or 1,642 days), this equates to about 0.18 new Azira visits per day.

To estimate the number of people associated with these visits, the same traffic volume (27,100 vehicles) and occupancy rate (1.5 persons per vehicle) were used. However, the relevant Azira sample size for this group in 2023 was 615, leading to an estimated 27,100 * 1.5 / 615 ≈ 66 people per Azira visit.

Multiplying the daily new Azira visits (0.18) by the estimated number of people per Azira visit (66) results in an estimated increase of approximately 12 additional beach visits per day. To distribute the estimated increase in beach visits across specific areas, we applied the same ratio derived from each beach's sample size of visitor nighttime locations to the total nighttime location sample size of beach visitors. This calculation was performed for the Makena Golf & Beach Club Workforce Housing Units (109 units) using the "All Other Locations (Maui Residents)" sample sizes.

Please note that this calculation assumes all road traffic is generated by nearby residential residents, providing a conservative estimate for each beach. As with the previous analysis, the peak visitation hours were identified as 3 PM to 7 PM, during which approximately 40% of visits occur. This percentage was used to estimate the projected increase in beach visitors during the peak period.

The results in **Table 8** show that the estimated increase in peak period beach visitors from the proposed 543 new Makena Golf & Beach Club Market units would be highest at Maluaka Beach with four (4) new peak period visitors, and a total of six (6) new visitors at all beaches. Furthermore, the highest estimated increase at a single beach from the proposed 109 workforce housing units is two (2) additional daily visitors and one (1) peak period visitor.

Table 8: Projected Increase in Beach Visitation with 543 New Makena Golf & Beach Club Market Units and 109 Workforce Housing Units - (Based on January 2019 – June 2024 Data Excluding Covid-19 Period)

Beach	543 Market Units		109 Workforce Housing Units	
	Estimated Daily Increase in Beachgoers[1]	Estimated Peak Period Increase in Beachgoers[1]	Estimated Daily Increase in Beachgoers[1]	Estimated Peak Period Increase in Beachgoers[1]
1. Kama'ole Beach Park I	0	0	2	1
2. Kama'ole Beach Park II	0	0	1	0
3. Kama'ole Beach Park III	1	0	1	1
4. Keawakapu Beach (North)	0	0	2	1
5. Keawakapu Beach (South)	0	0	1	0
6. Mōkapu Beach	0	0	1	0
7. Ulua Beach	0	0	1	0
8. Wailea Beach	1	1	1	1
9. Polo Beach	0	0	1	0
10. Palauea Beach	0	0	1	0
11. North Po'olenalena Beach	0	0	0	0
12. South Po'olenalena Beach	0	0	1	1
13. Ka'awa Beach	0	0	0	0
14. Makena Landing Beach	1	1	1	1
15. Maluaka Beach	10	4	1	0
16. One'uli Beach	1	0	0	0
17. Pu'u'Ola'i (Little) Beach	0	0	0	0
18. Makena State Park Beach (Big Beach)	1	0	2	1
Total[2]	***15***	***6***	***17***	***6***

1. The numbers in the table have been rounded to the nearest whole number.
2. Summing up the values in the total column results in slightly higher values compared to earlier calculations in the report, as individual visitors may have made multiple visits to a beach. The earlier methodology accounted for each unique device only once to more accurately represent distinct visitation patterns.

Additional Detailed Information from Azira Data Evaluation

Figures 19 through 21 illustrate the average number of beach visit samples by residents and guests of the Makena Golf & Beach Club PT/FT housing in the magenta bounded zones, presented by week, month, and year, respectively.

Figure 19: Weekly Average Number of Beach Visit Samples by Makena Golf & Beach Club PT/FT Residents

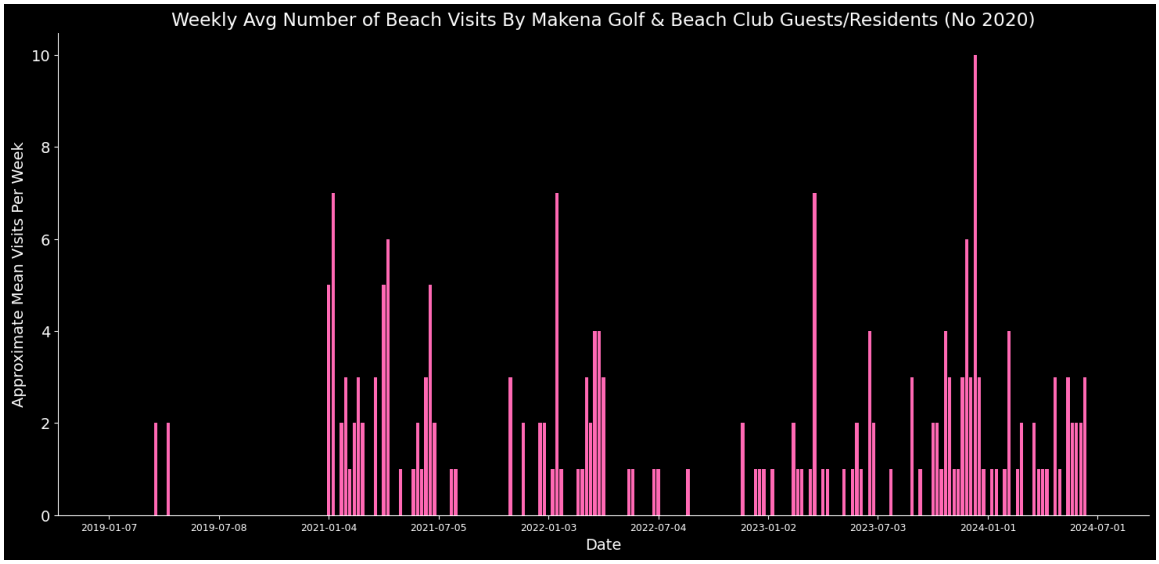


Figure 20: Monthly Average Number of Beach Visit Samples by Makena Golf & Beach Club PT/FT Residents

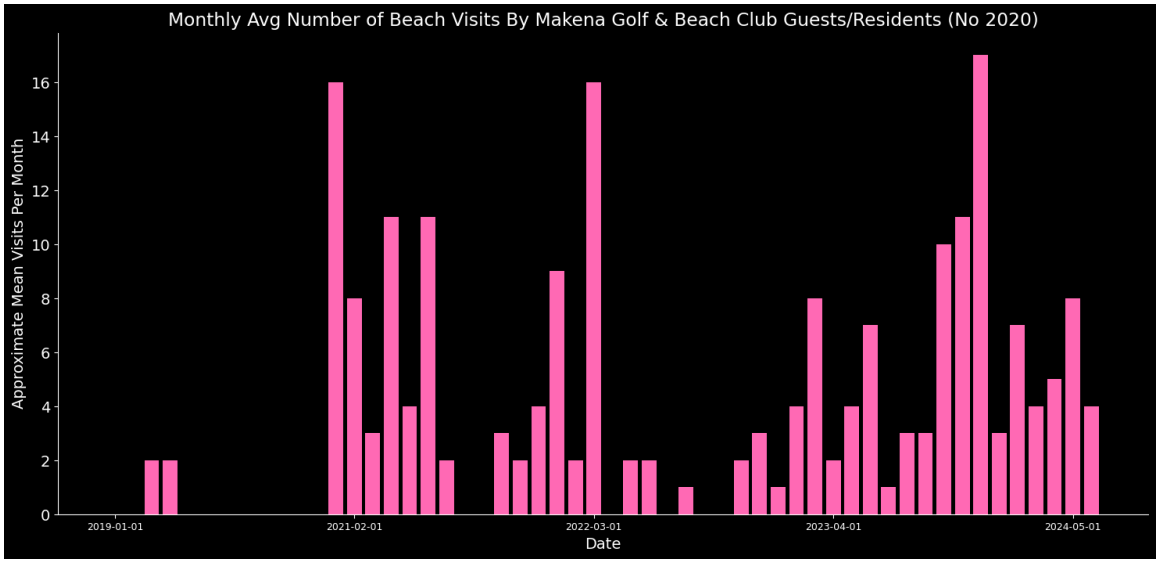


Figure 21: Yearly Average Number of Beach Visit Samples by Makena Golf & Beach Club PT/FT Residents

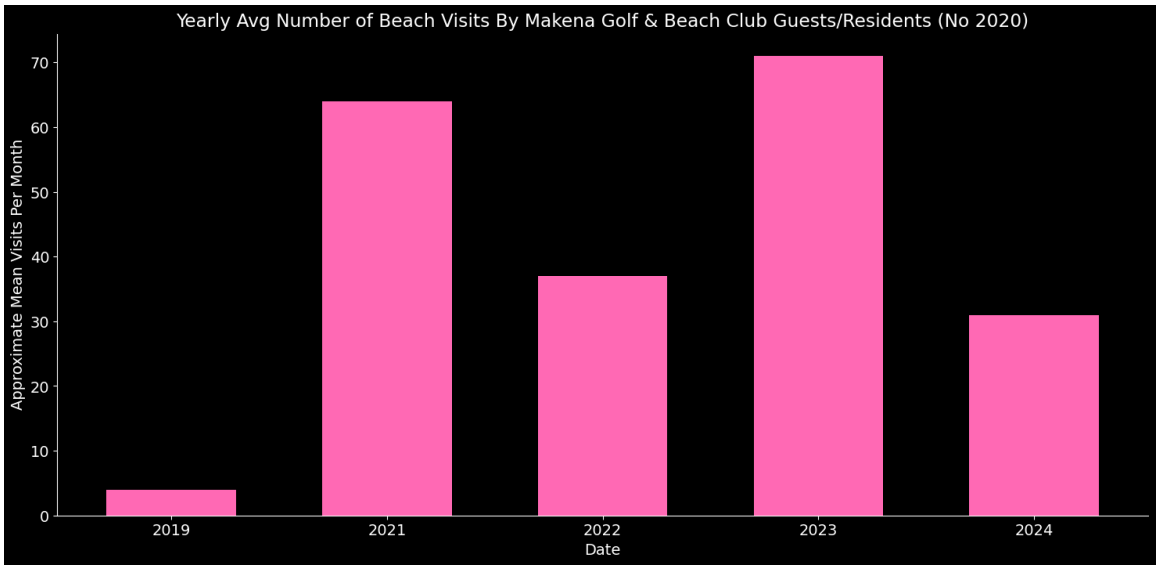


Figure 22 presents the temporal distribution of visit samples at each beach and the proportion from Makena Golf & Beach Club PT/FT residents, Other Makena PT/FT residents, Wailea PT/FT residents, Wailea hotel/resort guests, and other visitors from outside the immediate study area, categorized as Maui residents and Non-Maui residents.

Figure 22: Temporal Distribution of Visit Samples for Each Zone

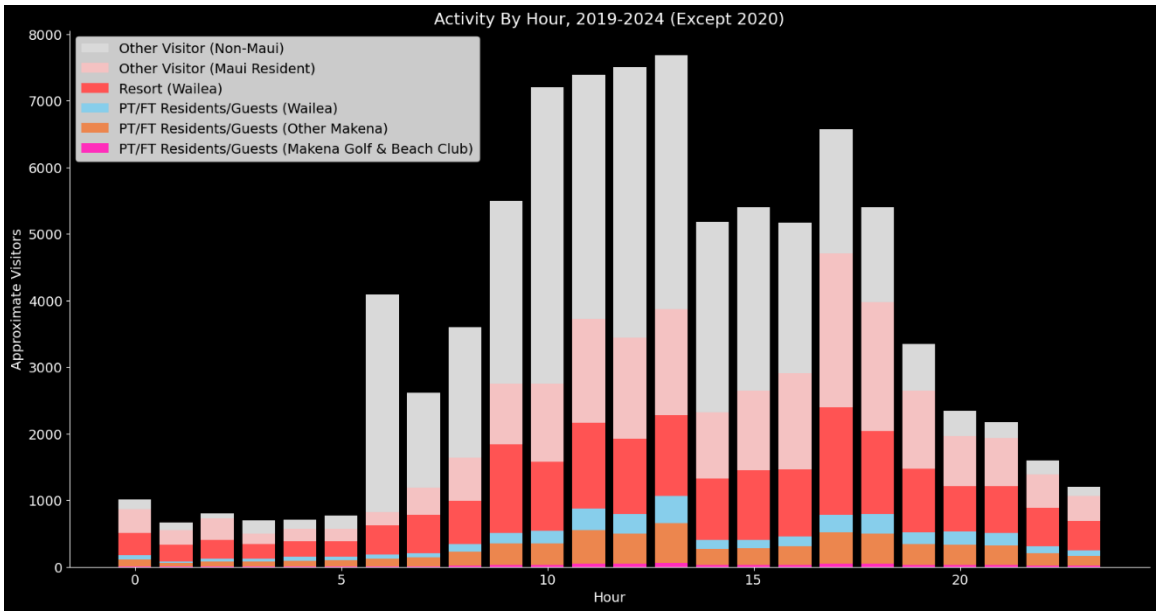
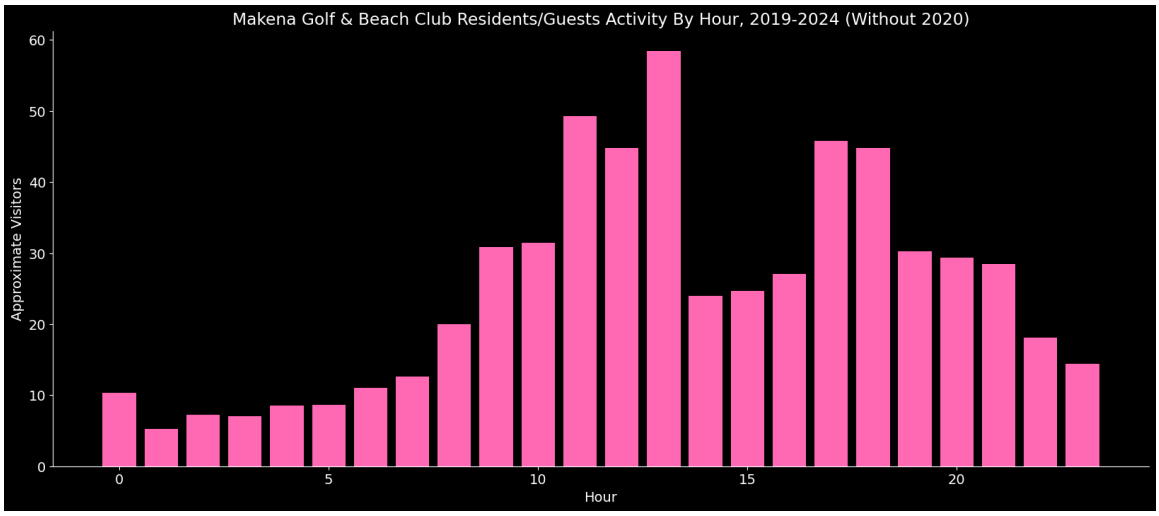


Figure 23 provides the same information as **Figure 22** for Makena Golf & Beach Club PT/FT residents and guests (i.e., in the magenta zones) but expands the vertical scale to better illustrate the hourly variation of visit samples from this group only over the 2019 to 2024 study period (without 2020).

Figure 23: Temporal Distribution of Visits by Makena Golf & Beach Club PT/FT Residents/Guests Only



Figures 24.a through 24.c present heatmaps of beach visitors based on their home locations, where they spend the majority of the year. For **Figure 24.a**, for example, Maui residents that were sampled at one of the 18 study beaches primarily live in the Kihei and other South Maui areas, with others living primarily in the Kahului and Wailuku communities. In **Figure 24.c**, the majority of beach visitors originate from the West Coast of the mainland, as well as from the Northeast, upper Midewest, and Texas.

Figure 24.a: Beach Visitor Maui Home Locations

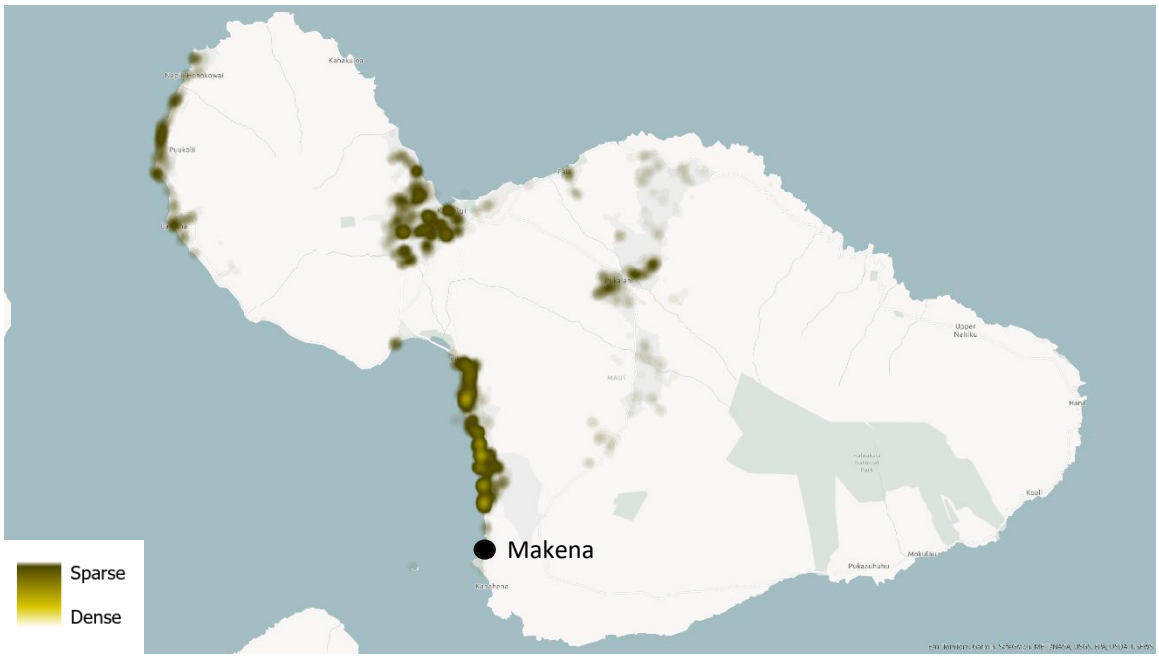


Figure 24.b: Beach Visitor State of Hawai'i Home Locations

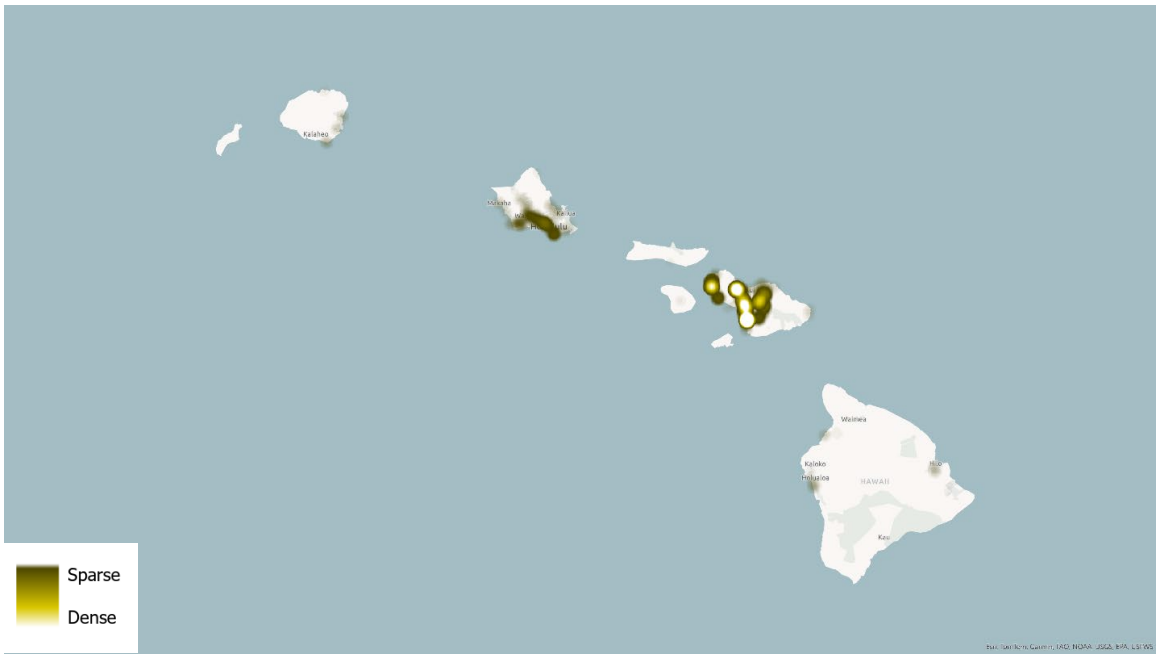


Figure 24.c: Beach Visitor U.S. Home Locations

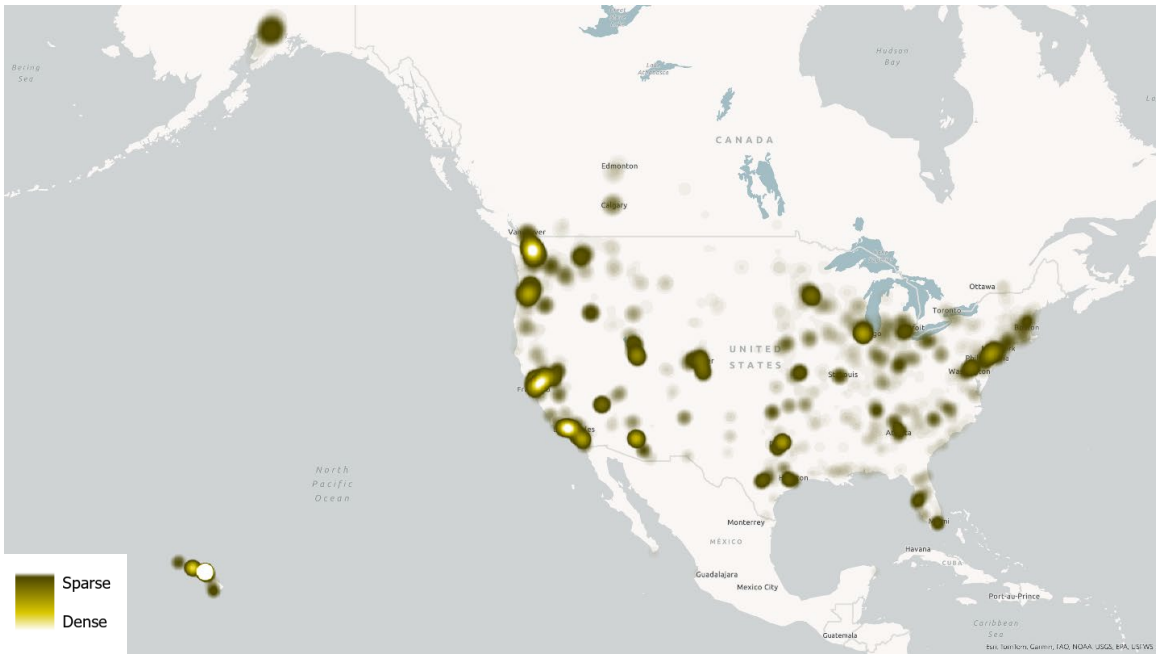


Figure 25 illustrates the variation in total visitation at all study beaches throughout the nearly 5-year period (without 2020) and compares visitation during peak months to the average months. From the data, total visitation is nearly 7% higher during the peak months (December – April) compared to the overall average. Among all months, September has the lowest average visitation (2,490), while December has the highest (4,105), resulting in a difference of 1,615 visits. The largest spikes in the data are anomalies and could be caused by a highly attended event(s), holidays, or other issues.

Figure 25: Estimated Daily Total Beach Visitation (Peak Months vs. Average)

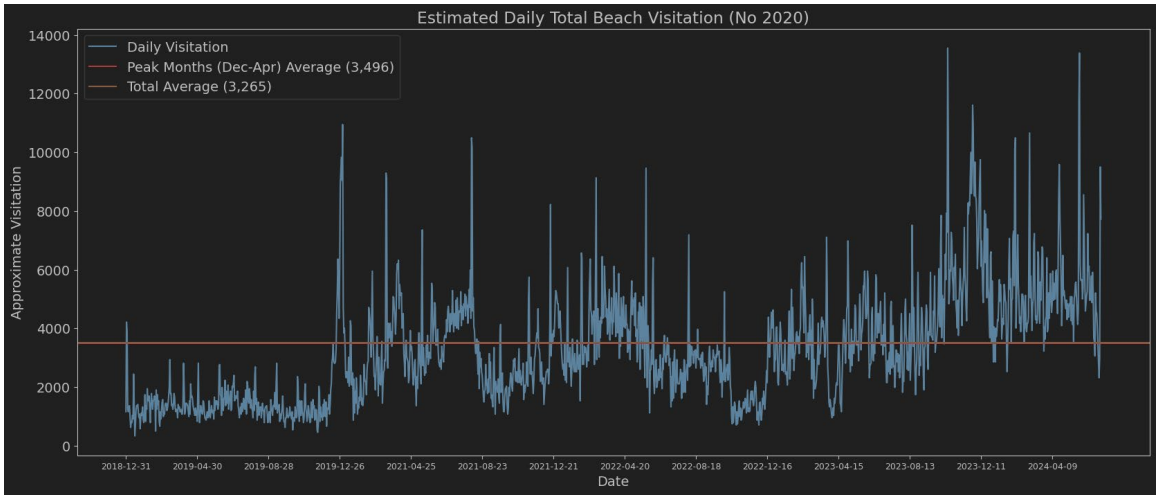


Figure 26 presents the same data as **Figure 25** but provides a detailed breakdown of beach visitation by Makena PT/FT residents, Wailea PT/FT residents, Wailea resort guests, and other visitors from outside the immediate study area, categorized as Maui residents and Non-Maui residents. As shown in the graph, Maui residents and visitors from outside the Makena area are the dominant beach visitor groups.

Figure 26: Estimated Daily Total Beach Visitation by Resident Area

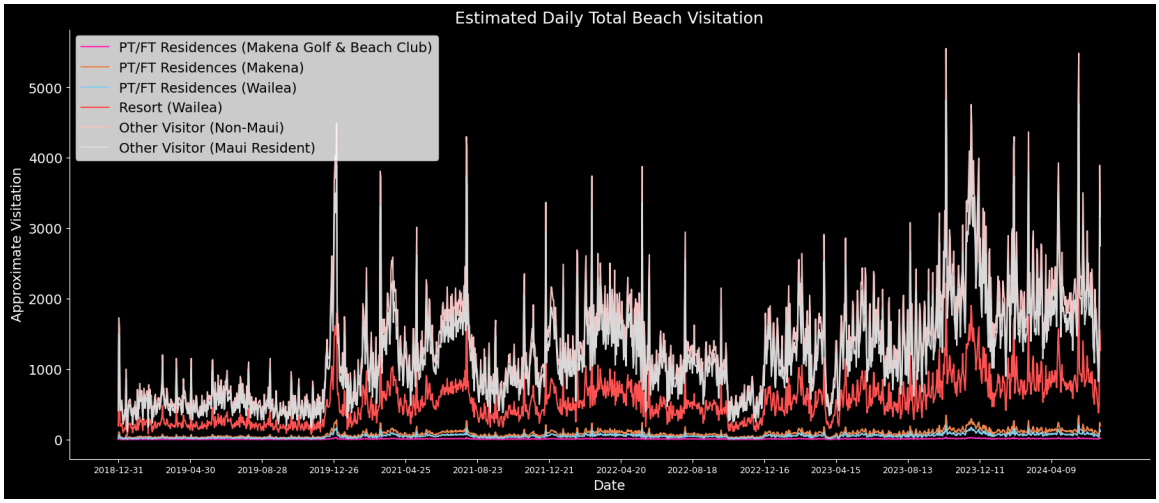
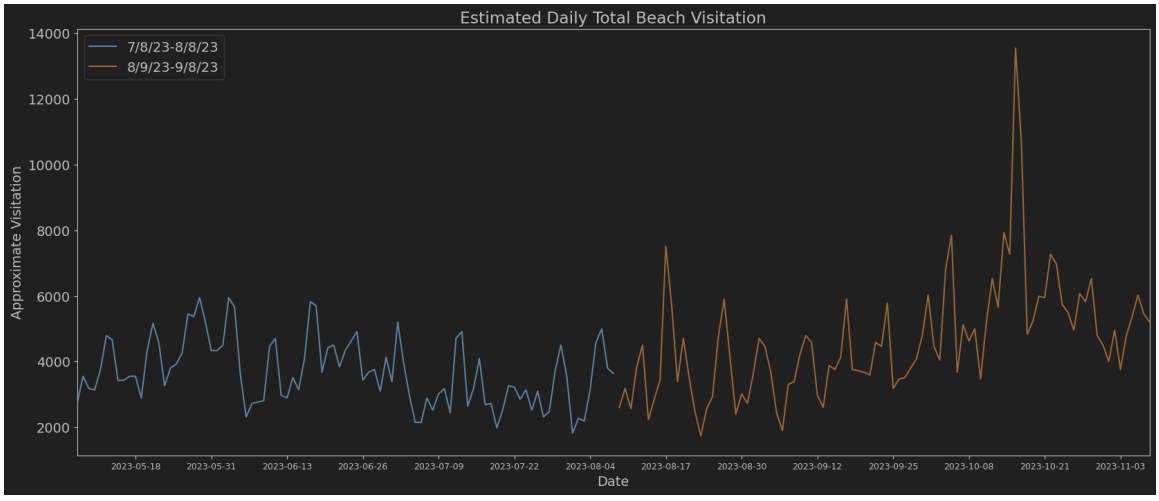


Figure 27 presents an analysis of daily beach visitation in the period surrounding the Maui wildfires. The data contrasts visitation for the month preceding the wildfires (July 8, 2023, to August 8, 2023) with the month following the event (August 9, 2023, to September 8, 2023). For broader context, the average daily visitation over the three months prior to the wildfires was 3,689, compared to 4,642 in the three months following the event, likely resulting from the travel restrictions to communities on the west side of Maui.

Figure 27: Estimated Daily Total Beach Visitation (Before and After Maui Wildfires)



Figures 28.a and 28.b compare beach visitation during the COVID period (Year 2020) with post-COVID visitation (Year 2022). As illustrated in the figures, daily visitation post-COVID is nearly twice that of the COVID period.

Figure 28.a: Estimated Daily Total Beach Visitation During COVID (Year 2020)

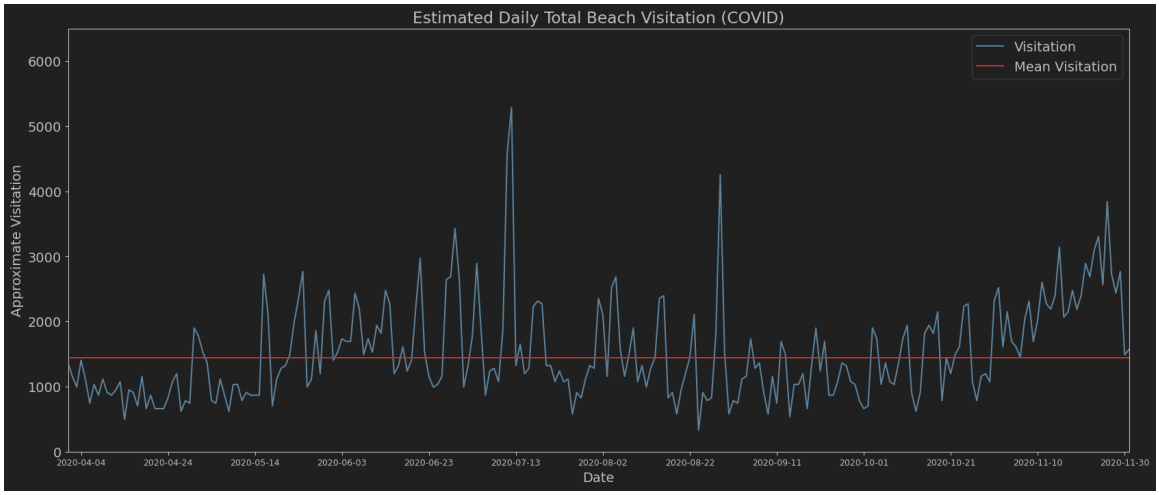
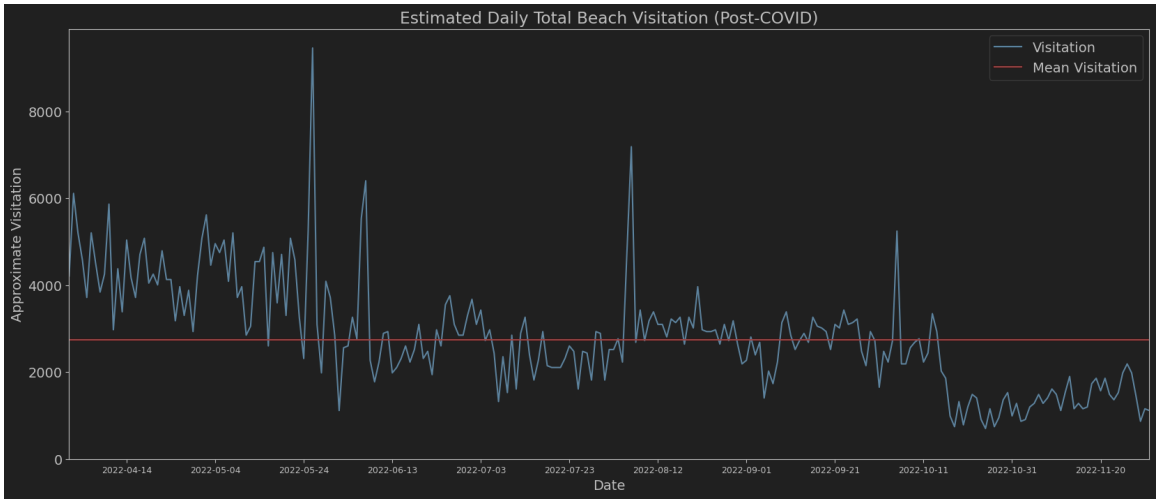


Figure 28.b: Estimated Daily Total Beach Visitation Post-Covid (Year 2022)



Figures 29.a and 29.b compare the daily total beach visitation for the first seven months of 2019 and the first seven months of 2023. This comparison eliminates the effect of the August 2023 Maui wildfire. Note that the 2019 visitation numbers are based on 7,626 unique devices (for the whole year), while the 2023 data are based on 21,423 devices. As Azira is collecting data from more and more phones over time, we believe the 2019 numbers are much less representative of actual beach visitation during that year. Please note that the increasing number of devices captured over the years does not necessarily translate to a proportional increase in the number of actual visits.

Figure 29.a: Estimated Daily Total Beach Visitation – January to July 2019

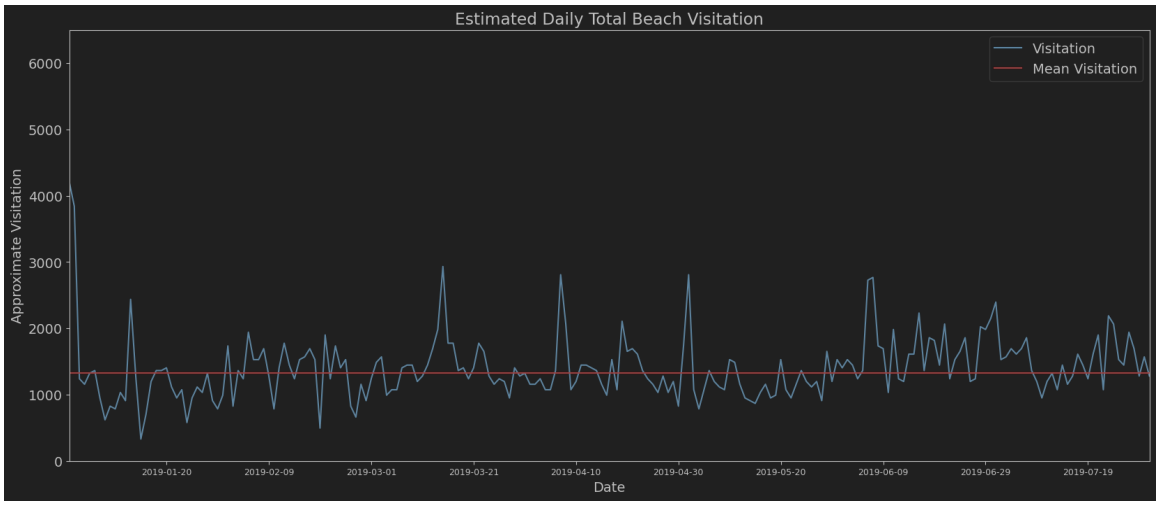


Figure 29.b: Estimated Daily Total Beach Visitation – January to July 2023

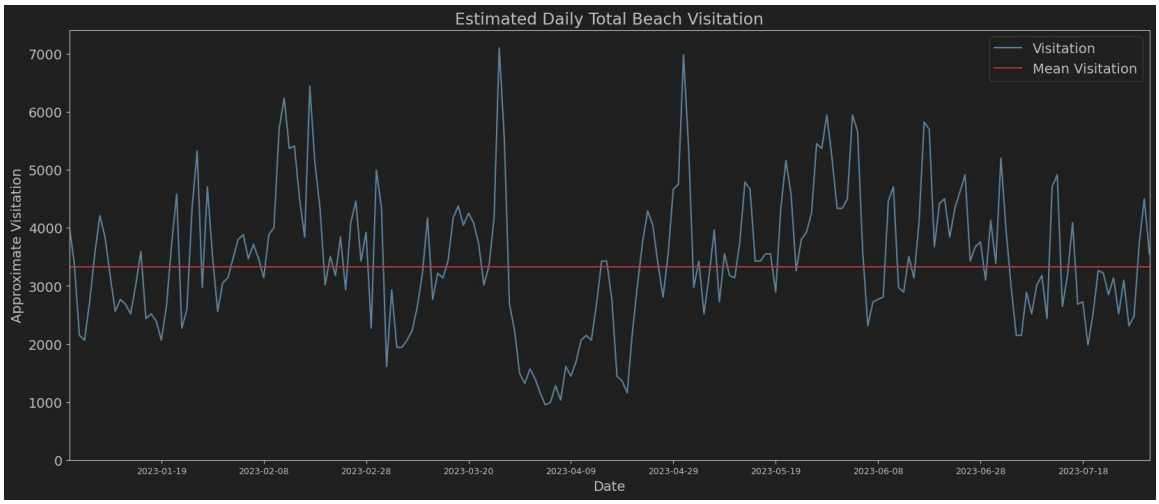


Figure 30 highlights the geographic location of all beach visitors two hours before and after their visit to a study beach(es). While most locations are in the South Maui area, visitors also traveled to various locations in the Kahului-Wailuku communities, and to the west side, albeit to a much lesser degree.

Figure 30: Beach Visitor Locations Two Hours Before and After Beach Visit (All Visitors)



Table 9 presents the aggregated percentages of beachgoers who visited various places two hours before and after their beach visit. These percentages are derived by dividing the total visits to each category between January 1, 2019, and June 30, 2024, excluding the year 2020, by the total number of beach visitor samples during the same period. Azira data provided specific locations or establishments, and these were aggregated into various land use categories for use in an economic analysis if needed.

Table 9: Beach Visitor Land Use Stops Two Hours Before and After Beach Visit (All Visitors)

Place Category	Percentage
Retail	15.14%
Gas Station/Auto Repair	8.89%
Fast Food	5.61%
Grocery	6.32%
Restaurant	5.96%
Parks	3.98%
Convenience	1.46%
Attraction	0.47%
Other	3.39%

Figure 31 and **Table 10** provide the same information as **Figure 30** and **Table 9**, but specifically for Makena Golf & Beach Club FT/PT residents and guests (magenta zones only).

Figure 31: Beach Visitor Locations Two Hours Before and After Beach Visit (Makena Golf & Beach Club PT/FT Residents)

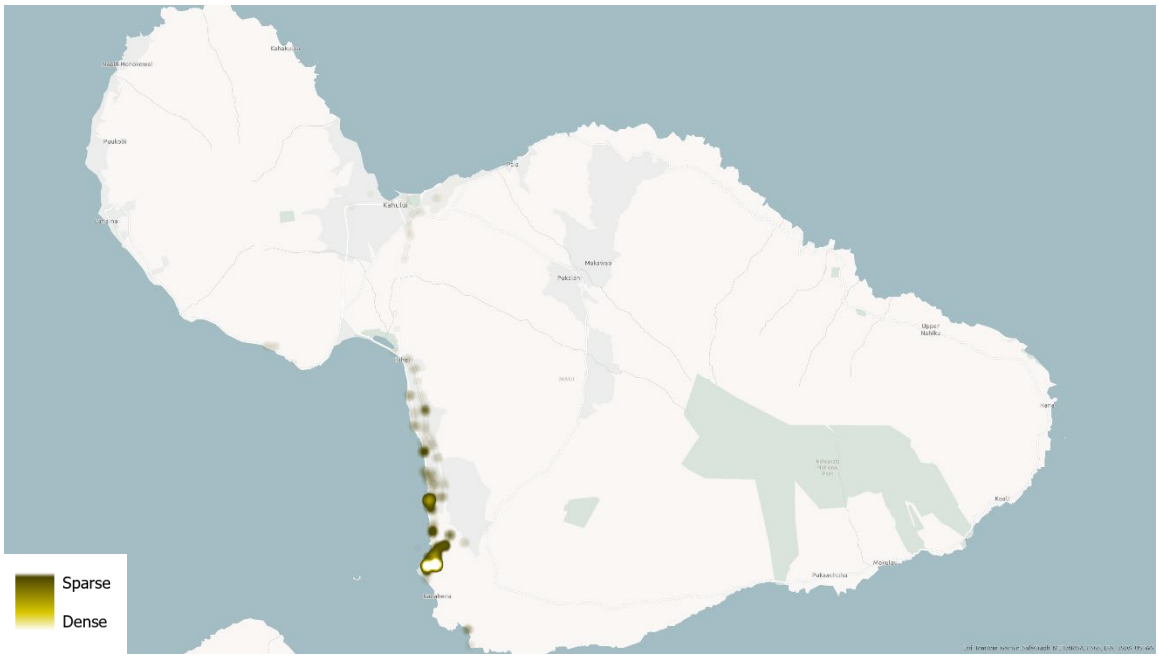


Table 10: Beach Visitor Land Use Stops Two Hours Before and After Beach Visit (Makena Golf & Beach Club PT/FT Residents)

Place Category	Percentage
Retail	15.94%
Gas Station/Auto Repair	11.59%
Fast Food	1.45%
Grocery	4.35%
Restaurant	2.90%
Parks	2.90%
Convenience	1.45%
Attraction	1.45%
Other	5.80%

Summary and Conclusion

According to the analysis of both scenarios, with and without COVID-19, the Makena Golf & Beach Club PT/FT residents (magenta areas) contribute the smallest percentage of beachgoers, significantly less than hotel/resort guests and visitors from other locations. When the dataset excludes the Covid-19 period, the resulting distribution of beach visitors is very similar to the results of the entire study period (January 2019 to June 2024). In the following summary the percentages

from the "with Covid-19" dataset are shown in parentheses following the non-Covid-19 dataset values. 0.19% (0.19%) of all study beach visitors originate in Makena Golf & Beach Club part-time/full-time residential units. Moreover, 1.89% (1.98%) of all study beach visitors originate in other Makena part-time/full-time residential units. In comparison, 23.02% (21.98%) of all visitors to the study area beaches originate from Wailea, with 1.28% (1.49%) from part-time/full-time residential units, 21.74% (20.49%) from resort areas. Visitors from non-Wailea and non-Makena areas make up 74.90% (75.85%) of the total, with 27.31% (31.57%) from Maui residents and 47.59% (44.28%) from non-Maui residents.

In both scenarios (with and without Year 2020 data from the pandemic), the anticipated impact of adding 543 new Makena Golf & Beach Club Market Units is shown, with the additional impact of 109 workforce housing units provided in parentheses, for the estimated daily and peak increases in beach visitation, respectively:

- Kama'ole Beach Park I: 0 (2) daily trips and 0 (1) peak hour trips.
- Kama'ole Beach Park I: 0 (1) daily trips and 0 (0) peak hour trips.
- Kama'ole Beach Park I: 1 (1) daily trips and 0 (1) peak hour trips.
- Keawakapu Beach (North): 0 (2) daily trips and 0 (1) peak hour trips.
- Keawakapu Beach (South): 0 (1) daily trips and 0 (0) peak hour trips.
- Mōkapu Beach: 0 (1) daily trips and 0 (0) peak hour trips.
- Ulua Beach: 0 (1) daily trips and 0 (0) peak hour trips.
- Wailea Beach: 1 (1) daily trips and 1 (1) peak hour trips.
- Polo Beach: 0 (1) daily trips and 0 (0) peak hour trips.
- Palauea Beach: 0 (1) daily trips and 0 (0) peak hour trips.
- North Po'olenalena Beach: 0 (0) daily trips and 0 (0) peak hour trips.
- South Po'olenalena Beach: 0 (1) daily trips and 0 (1) peak hour trips.
- Ka'awa Beach: 0 (0) daily trips and 0 (0) peak hour trips.
- Makena Landing Beach: 1 (1) daily trips and 1 (1) peak hour trips.
- Maluaka Beach: 10 (1) daily trips and 4 (0) peak hour trips.
- One'uli Beach: 1 (0) daily trips and 0 (0) peak hour trips.
- Pu'u 'Ola'i (Little) Beach: 0 (0) daily trips and 0 (0) peak hour trips.
- Makena State Park (Big Beach) Beach: 1 (2) daily trips and 0 (1) peak hour trips.

Regardless of the data source, the addition of the proposed 543 PT/FT dwelling units is forecast to have a negligible impact on visitation at the 18 study beaches. As mentioned earlier, the primary reason Makena Golf & Beach Club owners tend not to visit the beaches is that the club offers a private amenity program, including pools, spas, fitness facilities, F&B, and golf. With all the onsite amenities available, their beach visits are mainly limited to Maluaka Beach, but all beach visits from the new units will tend to be infrequent and dispersed across multiple beaches. Lastly, the addition of the proposed 109 Workforce Housing Units is also forecasted to have a similar negligible impact

on visits at the 18 study beaches, with a total of 17 additional daily trips and seven (7) peak-hour trips at all locations.

Appendix A: Individual Beach Visitation Trends by Nighttime Location

Figure 32: Kama'ole Beach Park I Visitation by Nighttime Location – (January 2019 to June 2024 Including Covid-19 Period Data)

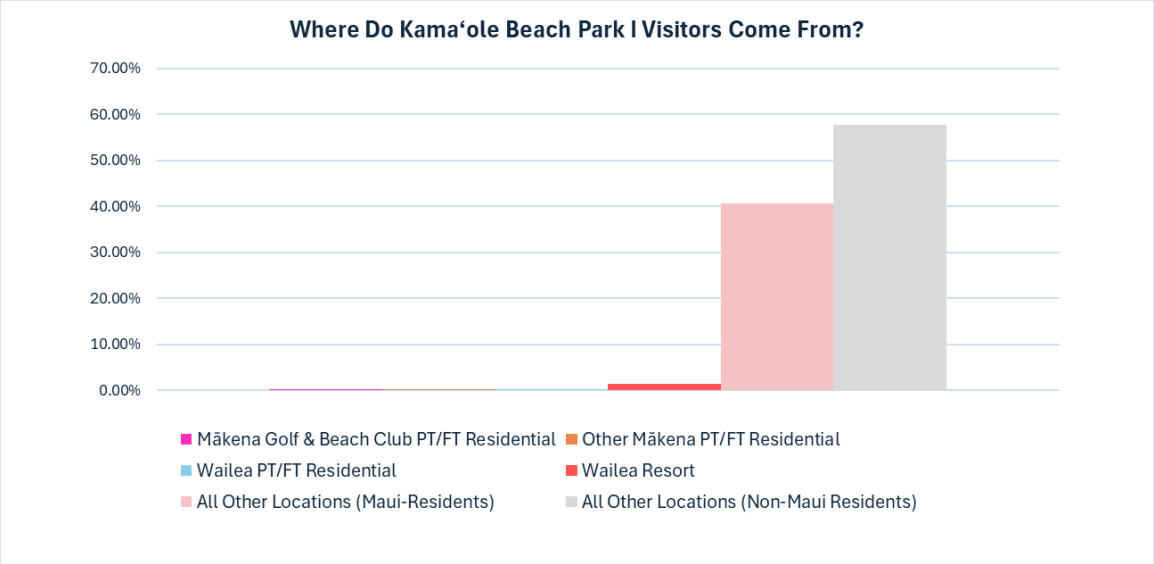


Figure 33: Kama'ole Beach Park I Visitation by Nighttime Location – (January 2019 – June 2024 Excluding Covid-19 Period Data)

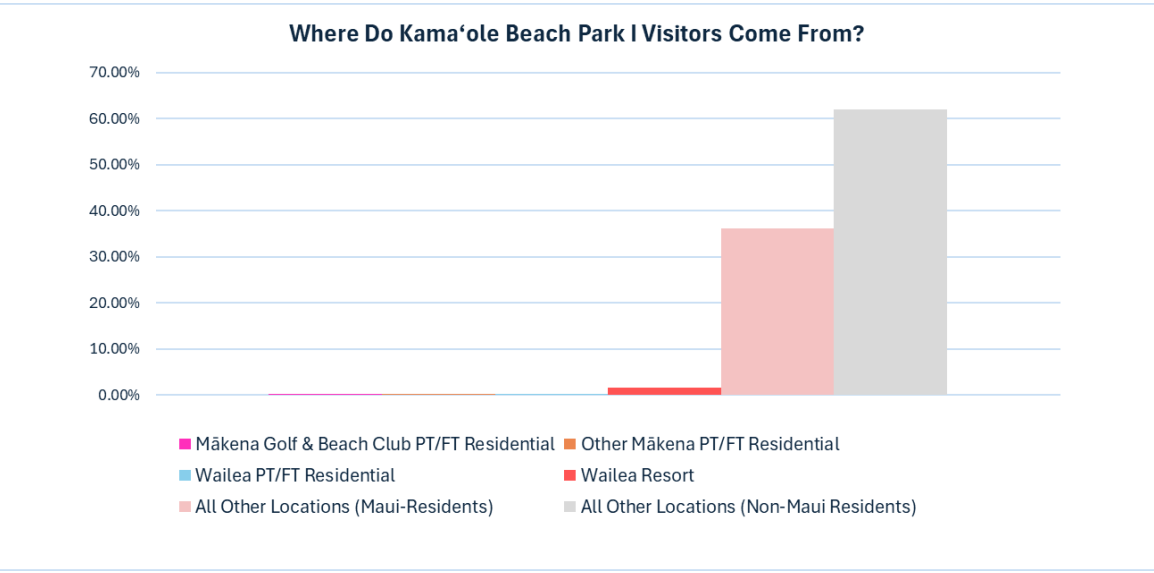


Figure 34: Kama'ole Beach Park II Visitation by Nighttime Location – (January 2019 to June 2024 Including Covid-19 Period Data)

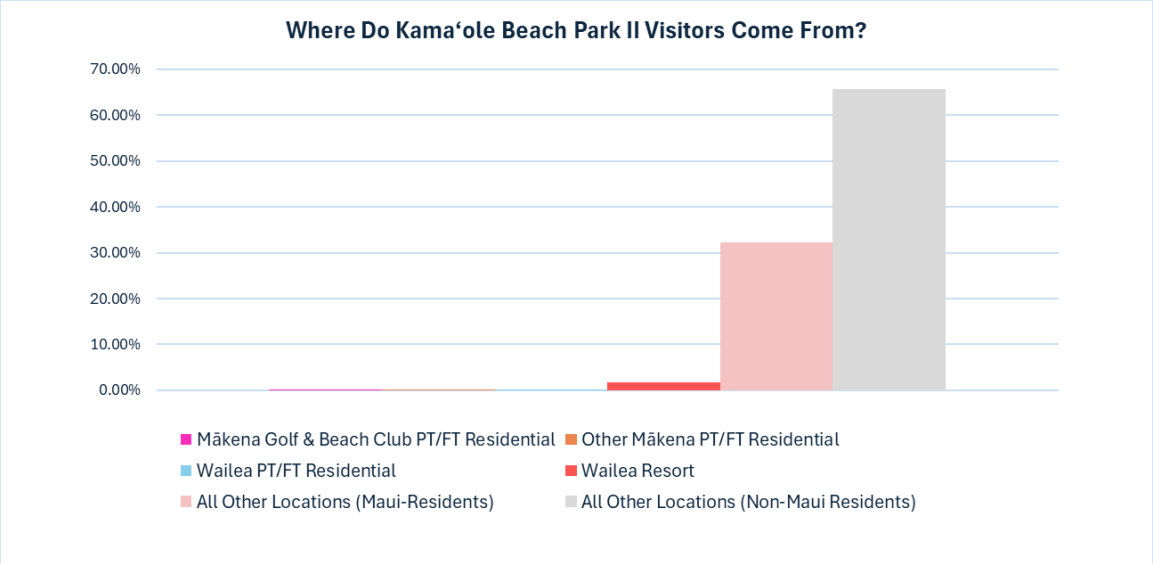


Figure 35: Kama'ole Beach Park II Visitation by Nighttime Location – (January 2019 – June 2024 Excluding Covid-19 Period Data)

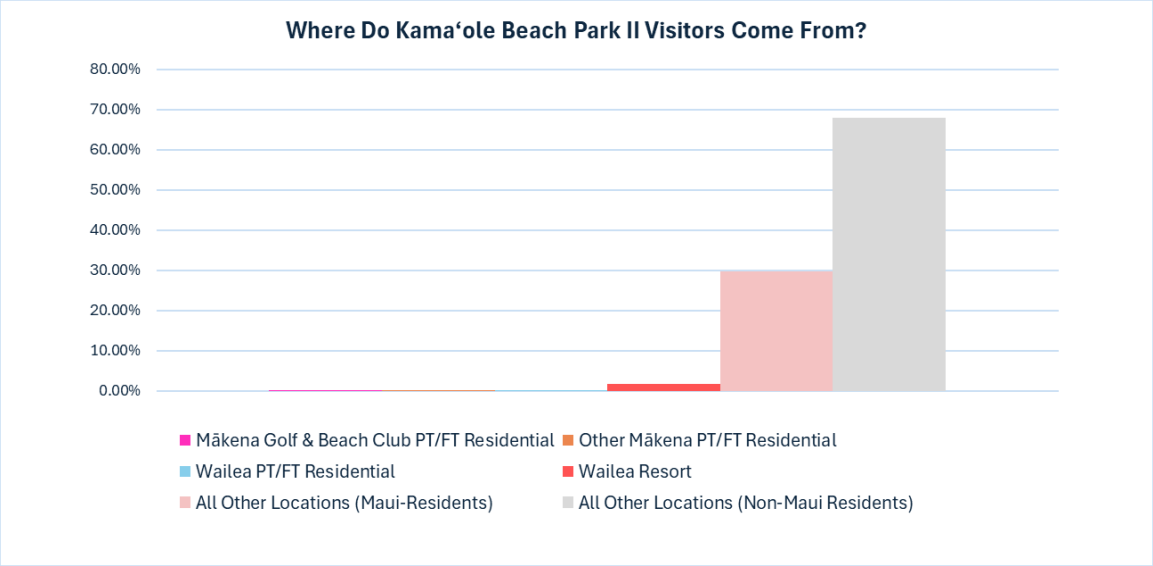


Figure 36: Kama'ole Beach Park III Visitation by Nighttime Location – (January 2019 to June 2024 Including Covid-19 Period Data)

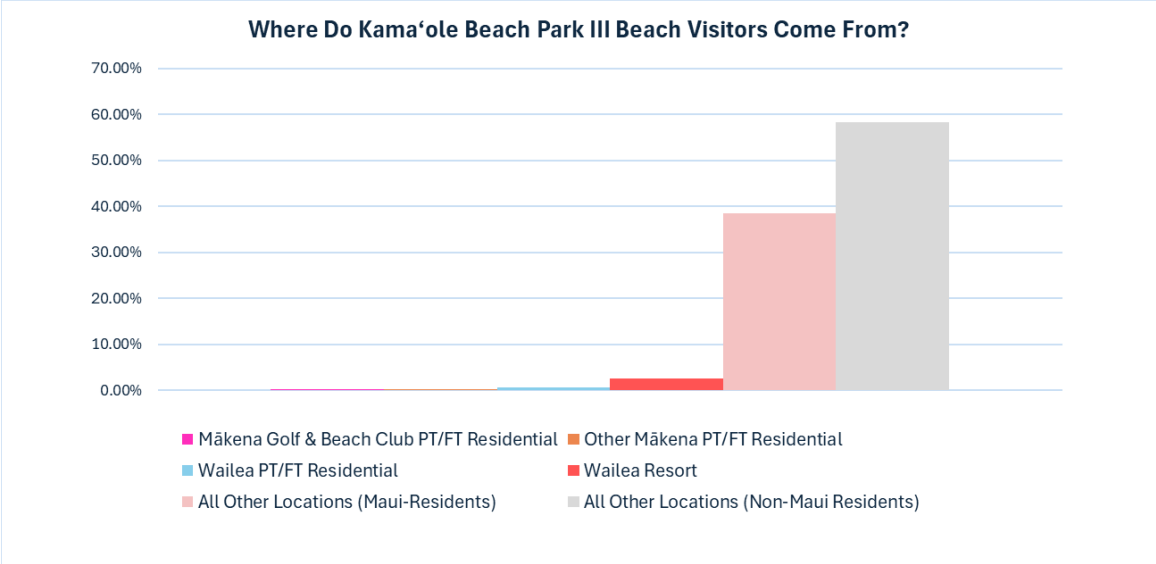


Figure 37: Kama'ole Beach Park III Visitation by Nighttime Location – (January 2019 – June 2024 Excluding Covid-19 Period Data)

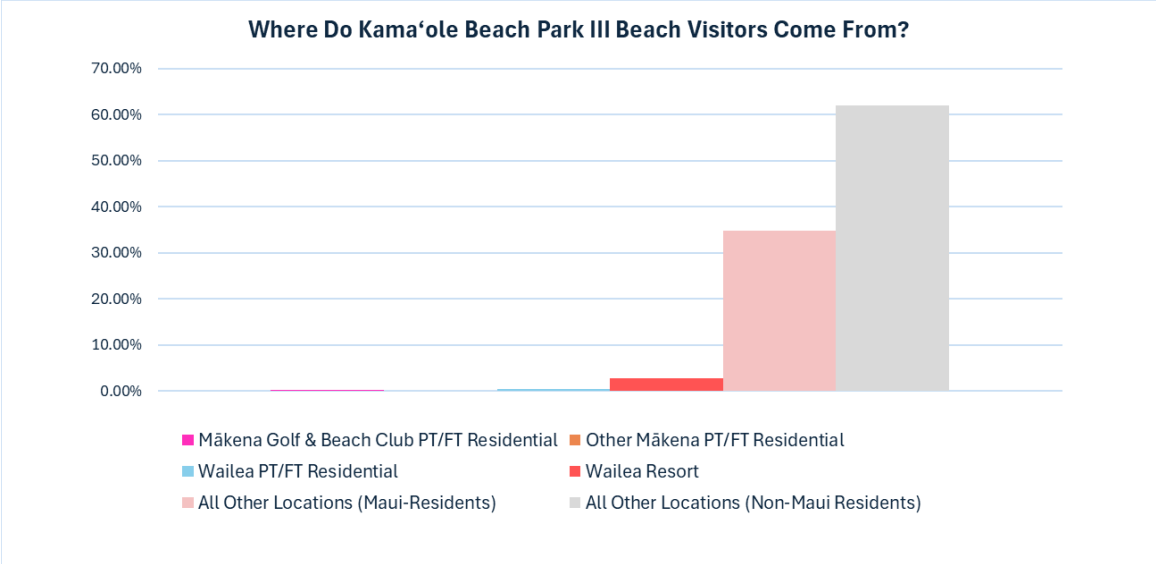


Figure 38: Keawakapu Beach (North) Visitation by Nighttime Location – (January 2019 to June 2024 Including Covid-19 Period Data)

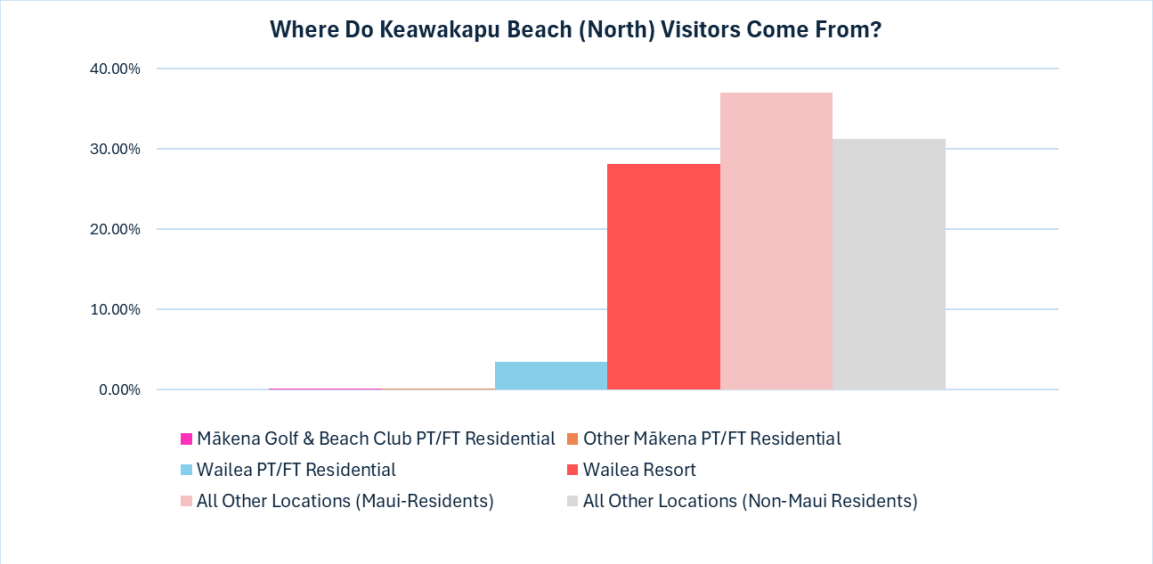


Figure 39: Keawakapu Beach (North) Visitation by Nighttime Location – (January 2019 – June 2024 Excluding Covid-19 Period Data)

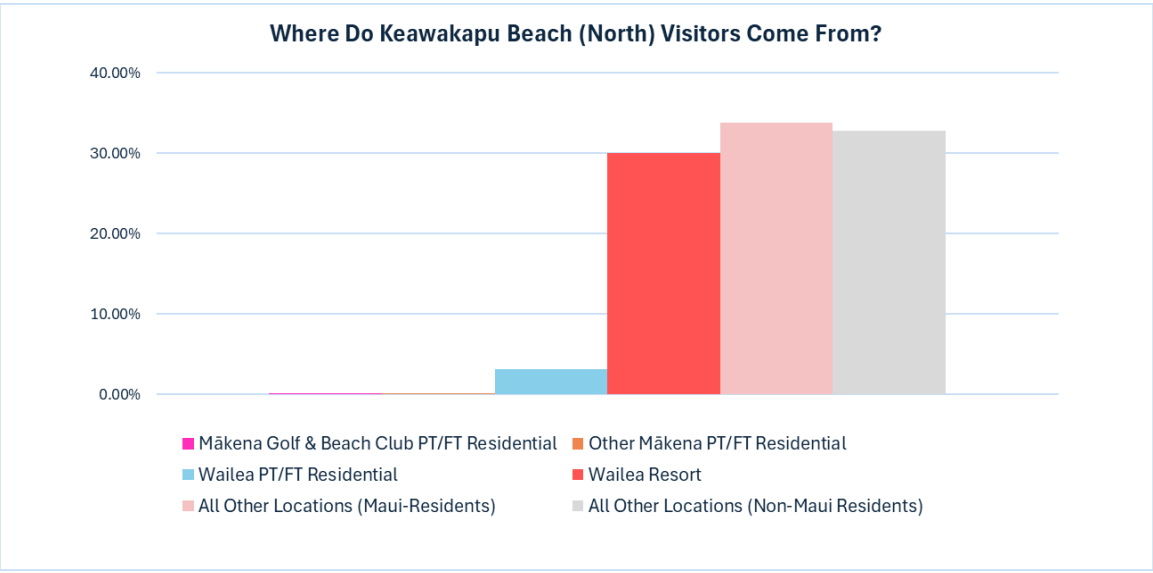


Figure 40: Keawakapu Beach (South) Visitation by Nighttime Location – (January 2019 to June 2024 Including Covid-19 Period Data)

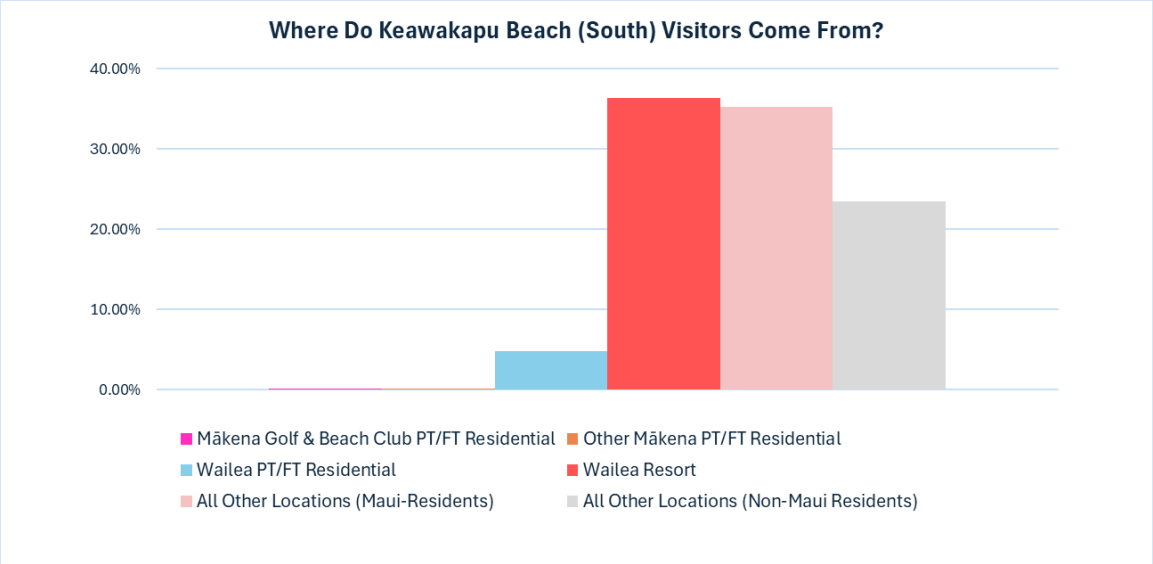


Figure 41: Keawakapu Beach (South) Visitation by Nighttime Location – (January 2019 – June 2024 Excluding Covid-19 Period Data)

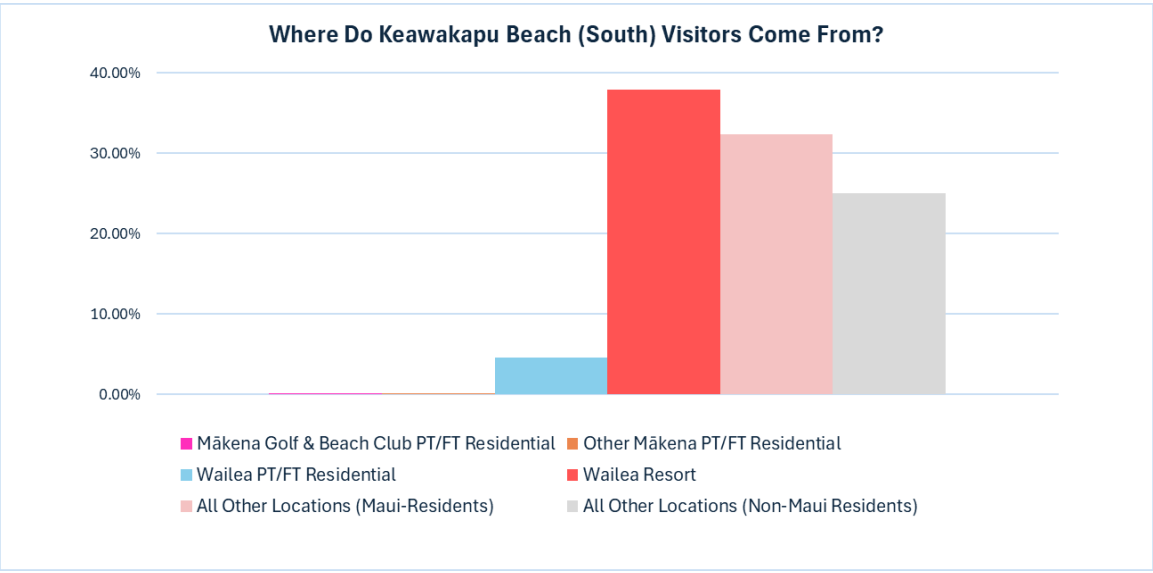


Figure 42: Mōkapu Beach Visitation by Nighttime Location – (January 2019 to June 2024 Including Covid-19 Period Data)

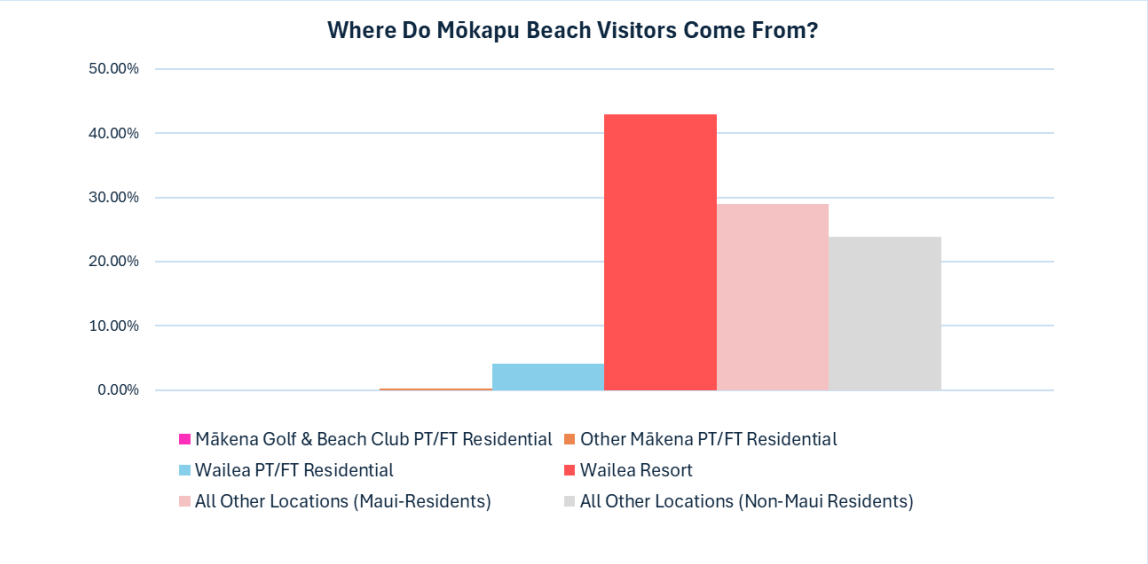


Figure 43: Mōkapu Beach Visitation by Nighttime Location – (January 2019 – June 2024 Excluding Covid-19 Period Data)

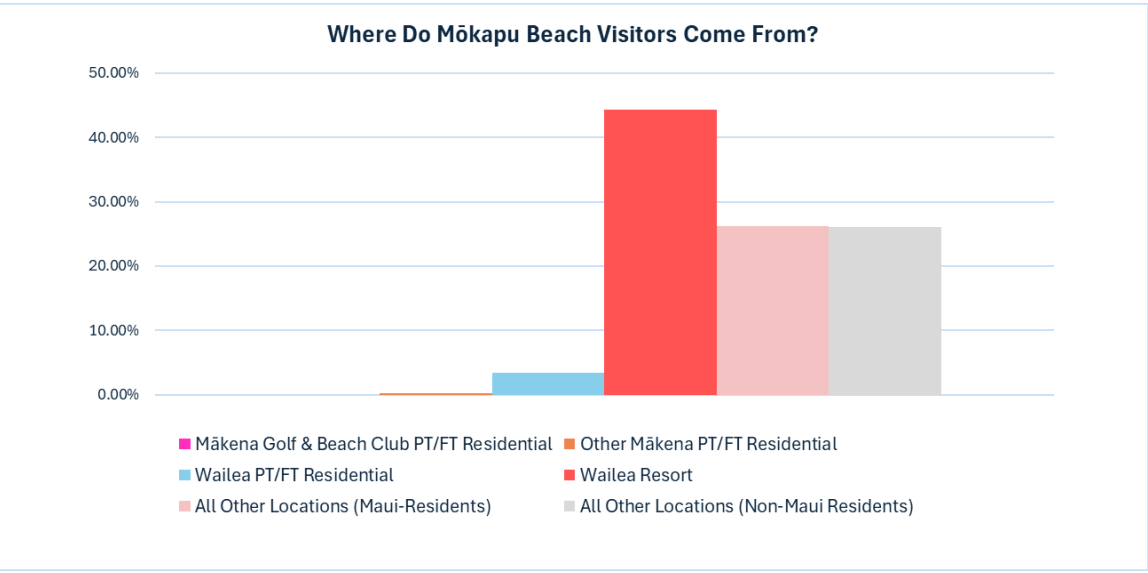


Figure 44: Ulua Beach Visitation by Nighttime Location – (January 2019 to June 2024 Including Covid-19 Period Data)

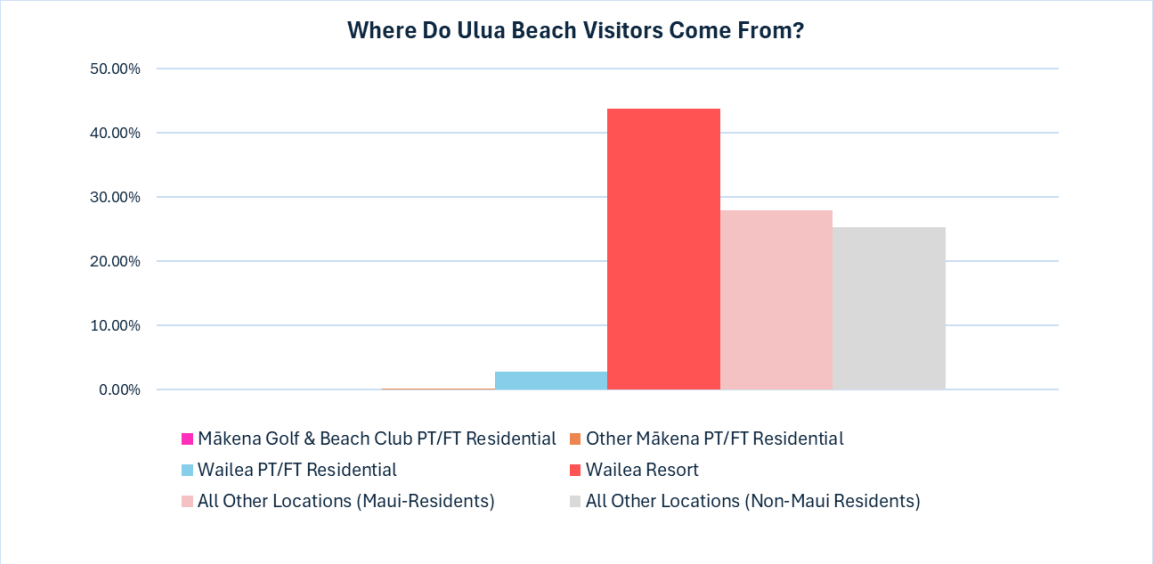


Figure 45: Ulua Beach Visitation by Nighttime Location – (January 2019 – June 2024 Excluding Covid-19 Period Data)

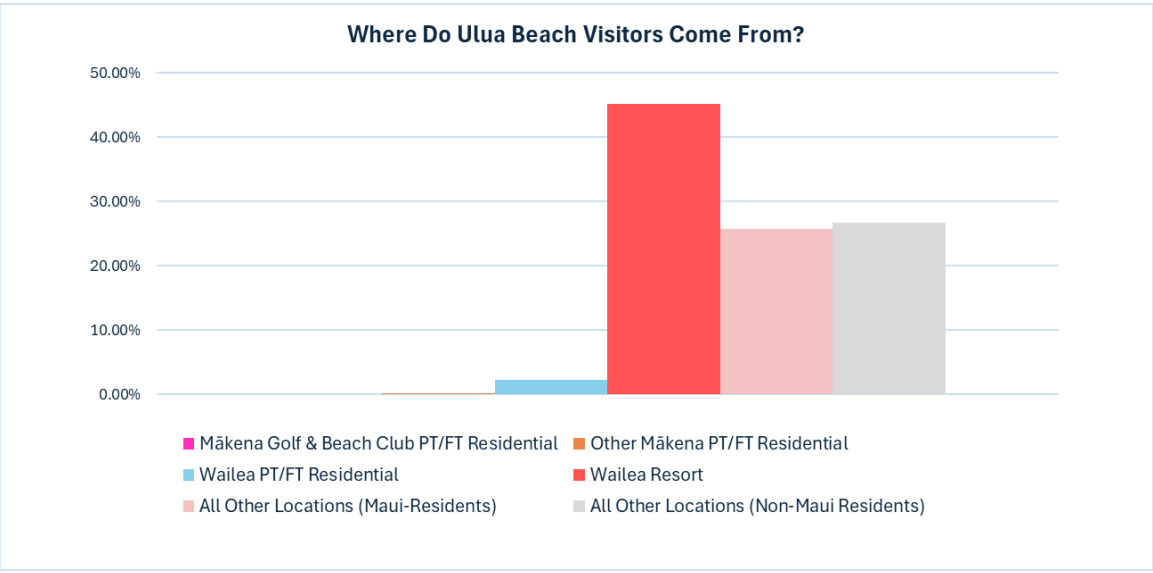


Figure 46: Wailea Beach Visitation by Nighttime Location – (January 2019 to June 2024 Including Covid-19 Period Data)

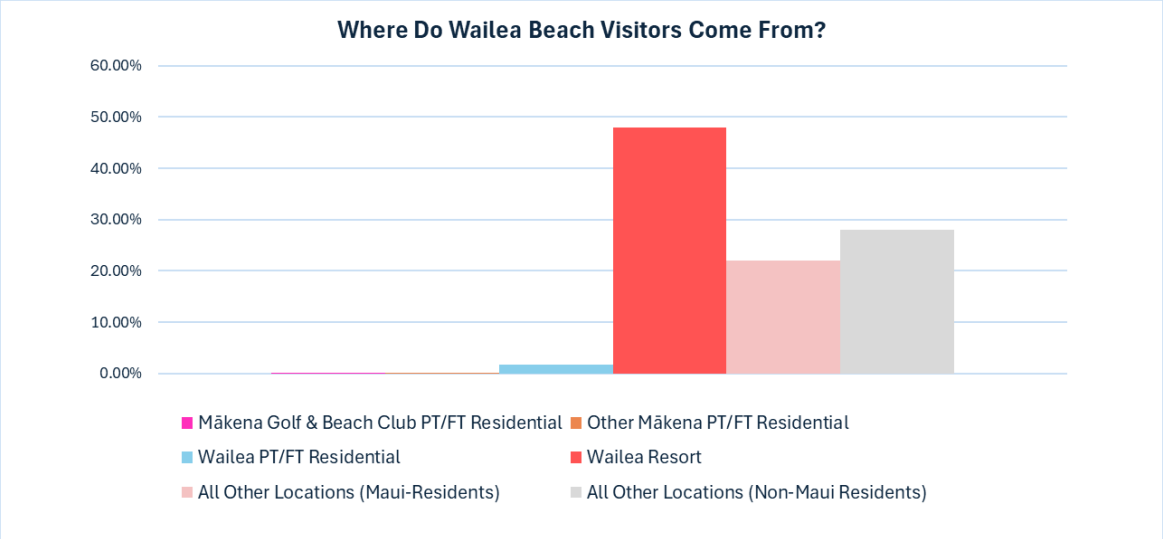


Figure 47: Wailea Beach Visitation by Nighttime Location – (January 2019 – June 2024 Excluding Covid-19 Period Data)

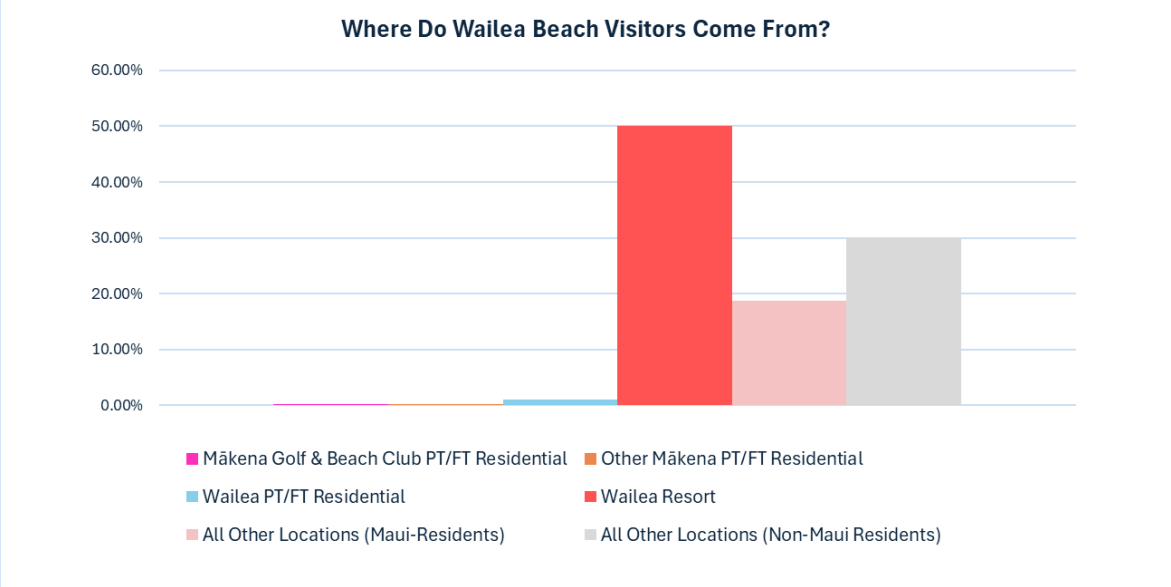


Figure 48: Polo Beach Visitation by Nighttime Location – (January 2019 to June 2024 Including Covid-19 Period Data)

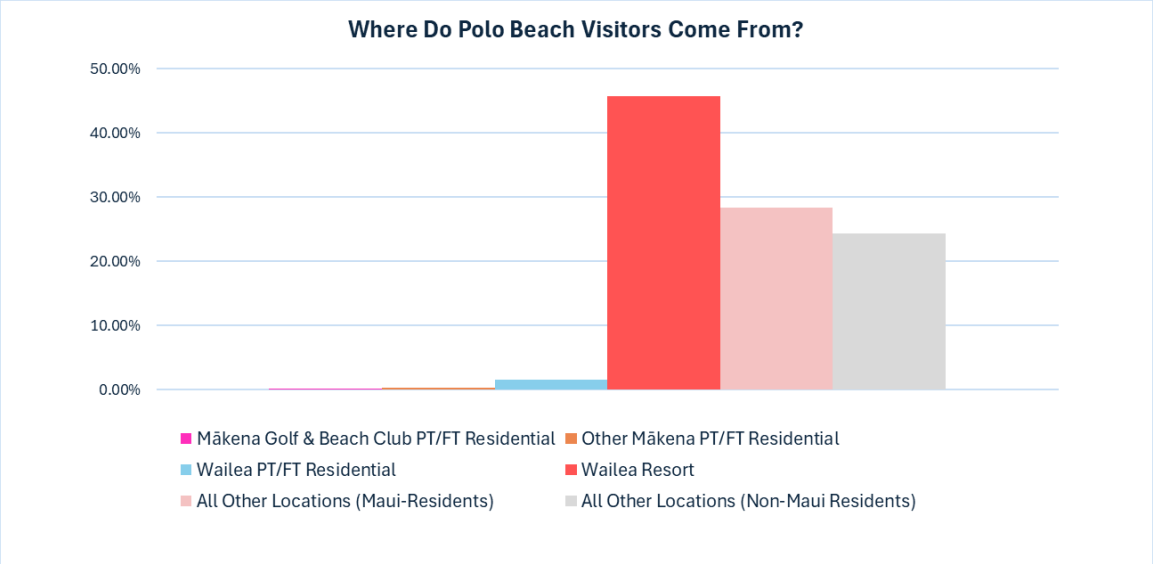


Figure 49: Polo Beach Visitation by Nighttime Location – (January 2019 – June 2024 Excluding Covid-19 Period Data)

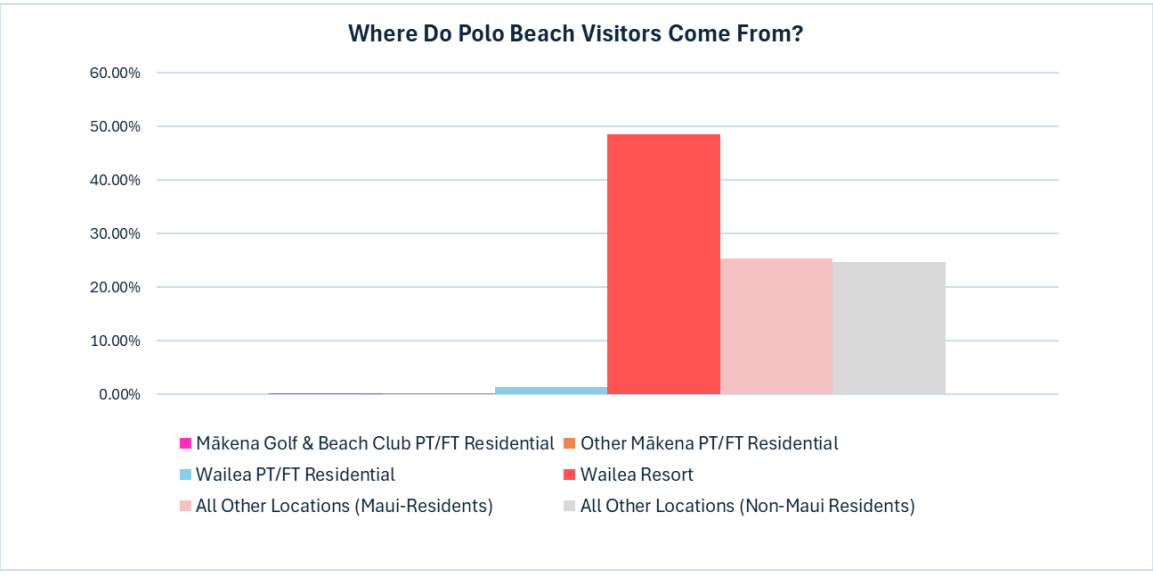


Figure 50: Palauea Beach Visitation by Nighttime Location – (January 2019 to June 2024 Including Covid-19 Period Data)

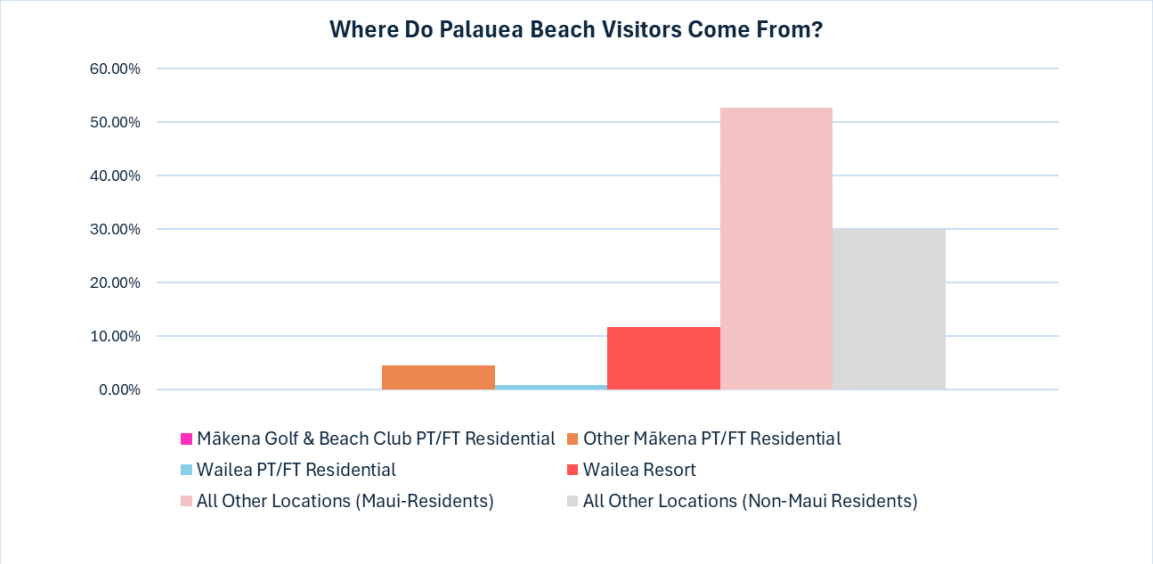


Figure 51: Palauea Beach Visitation by Nighttime Location – (January 2019 – June 2024 Excluding Covid-19 Period Data)

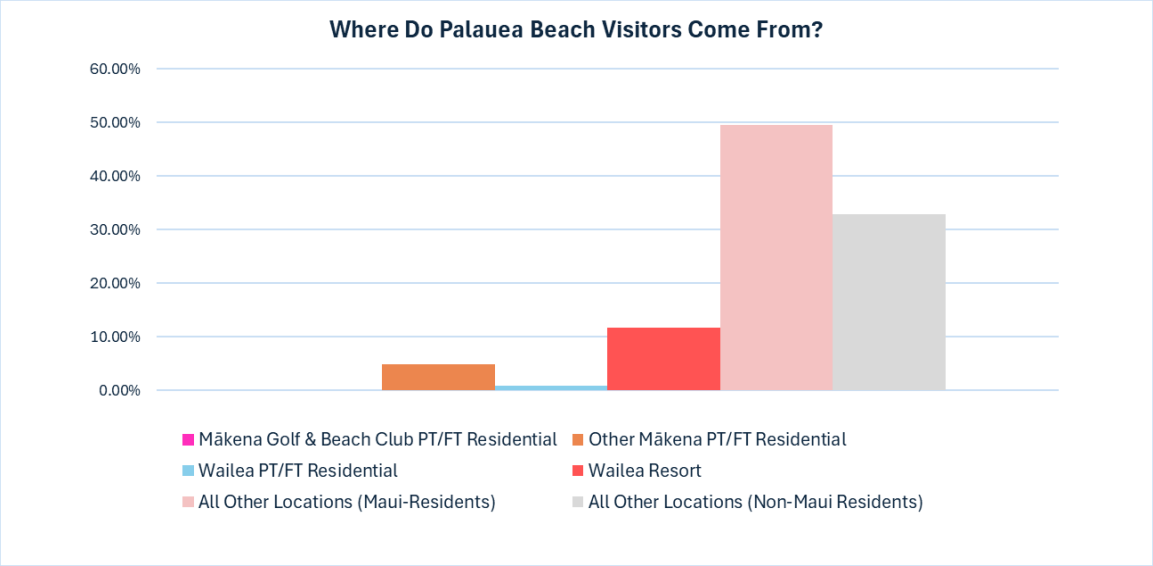


Figure 52: North Po'olenalena Beach Visitation by Nighttime Location – (January 2019 to June 2024 Including Covid-19 Period Data)

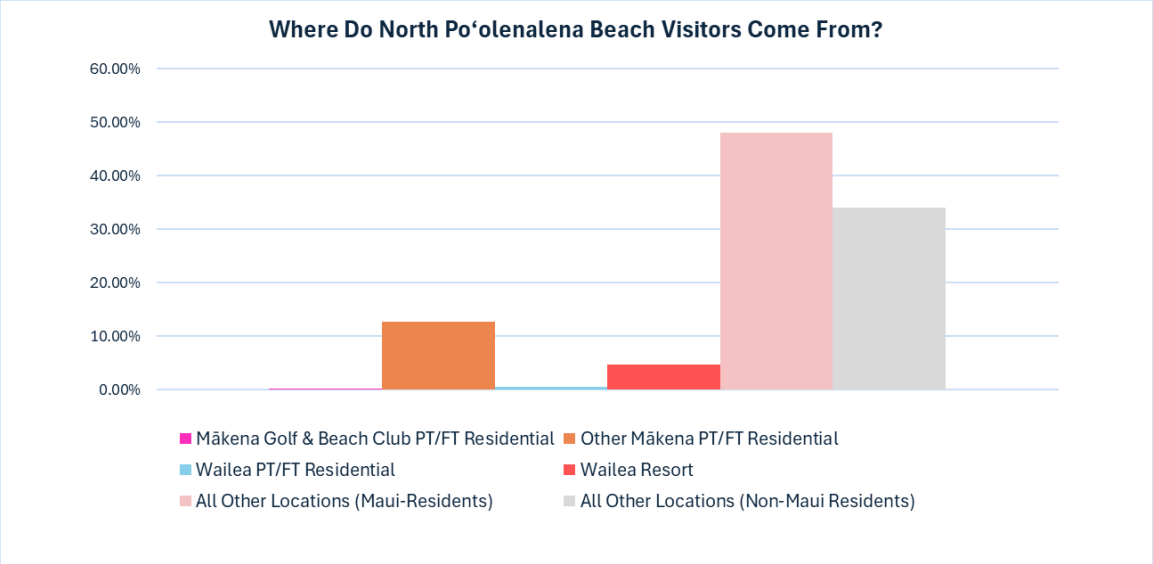


Figure 53: North Po'olenalena Beach Visitation by Nighttime Location – (January 2019 – June 2024 Excluding Covid-19 Period Data)

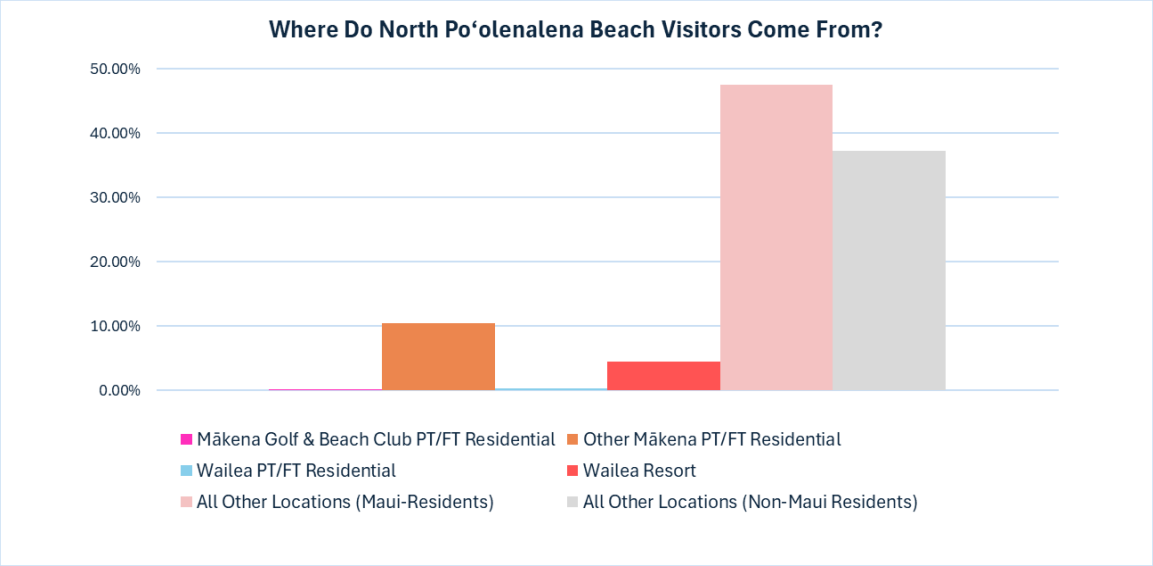


Figure 54: South Po'olenalena Beach Visitation by Nighttime Location – (January 2019 to June 2024 Including Covid-19 Period Data)

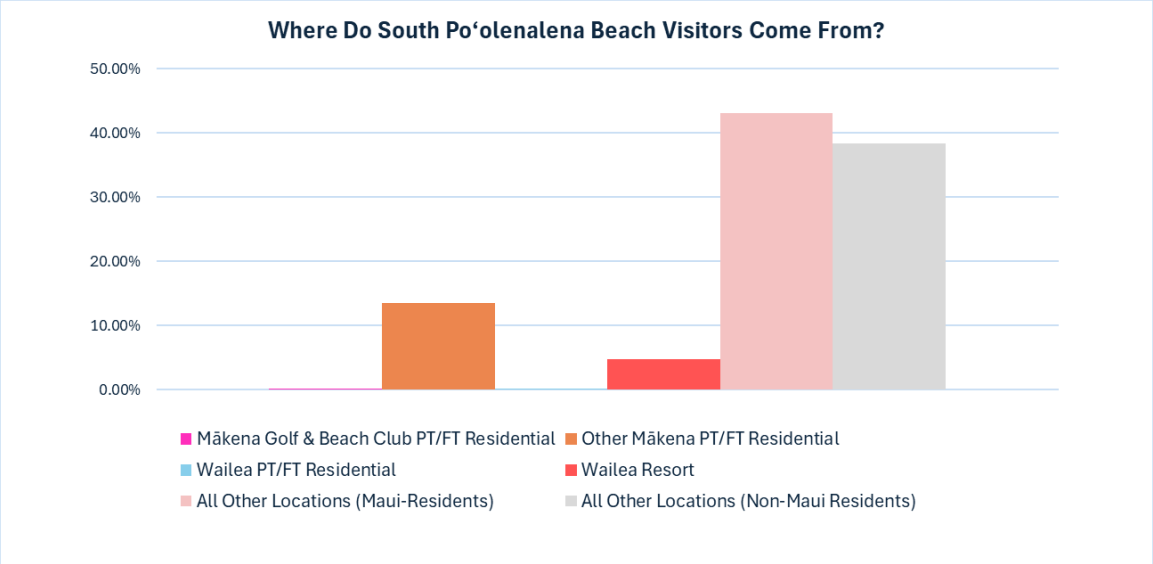


Figure 55: South Po'olenalena Beach Visitation by Nighttime Location – (January 2019 – June 2024 Excluding Covid-19 Period Data)

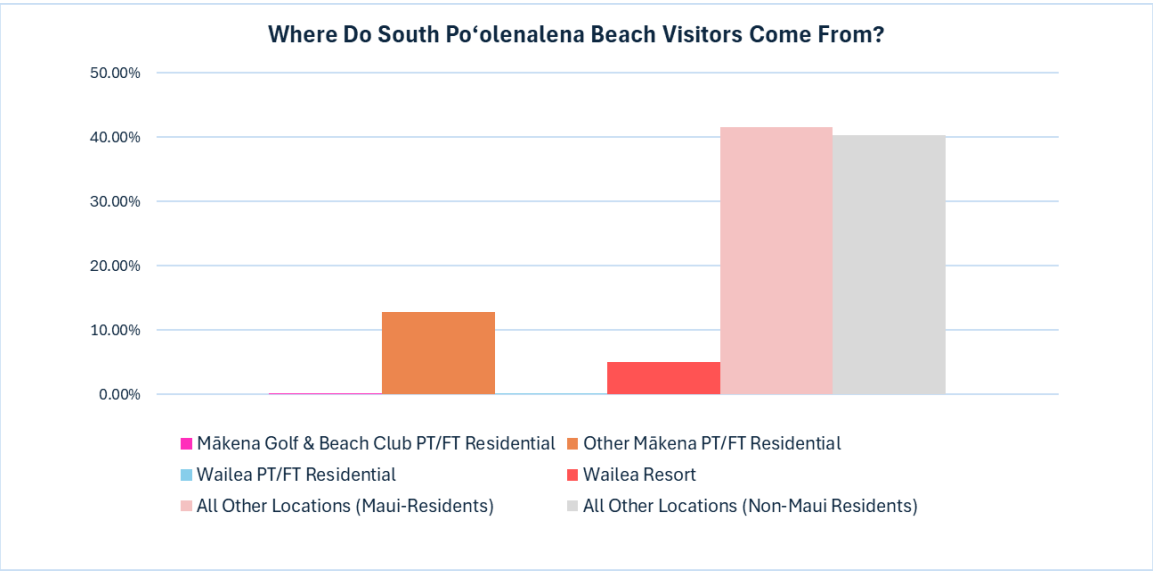


Figure 56: Ka'awa Beach Visitation by Nighttime Location – (January 2019 to June 2024 Including Covid-19 Period Data)

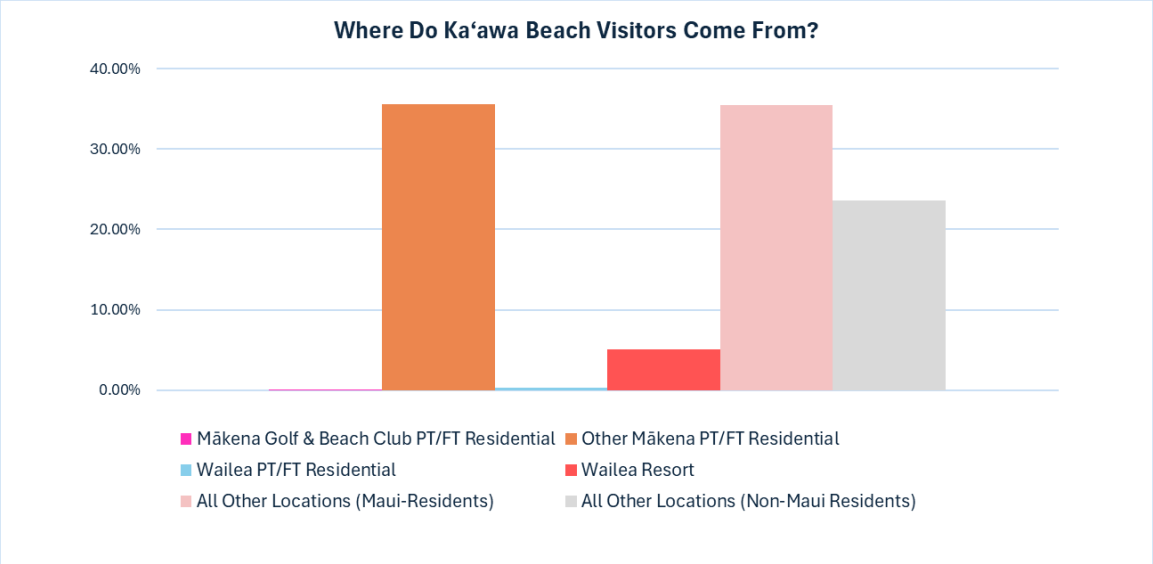


Figure 57: Ka'awa Beach Visitation by Nighttime Location – (January 2019 – June 2024 Excluding Covid-19 Period Data)

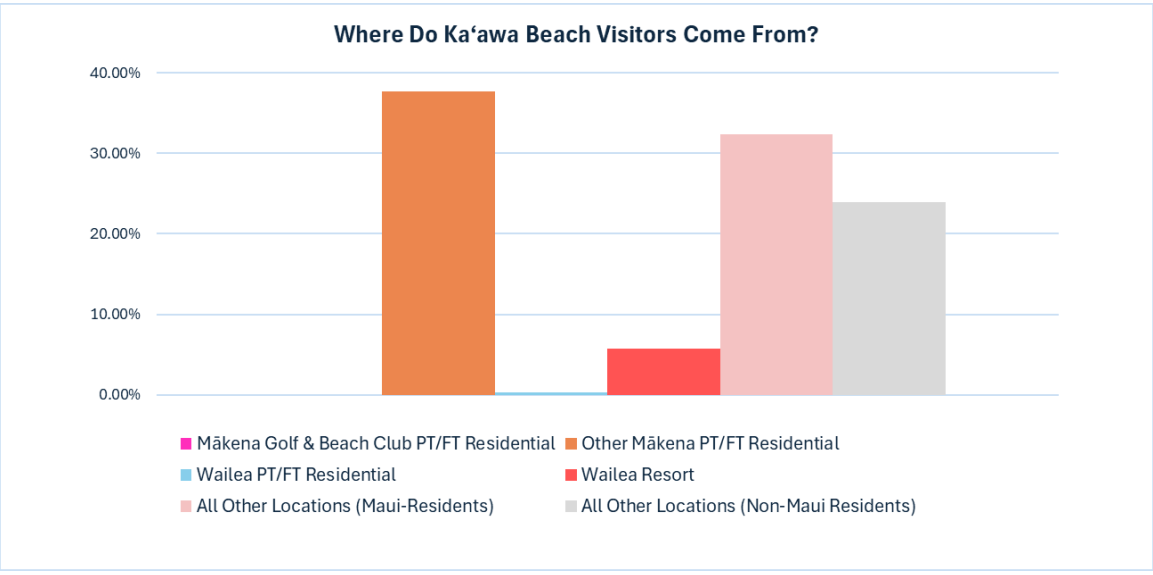


Figure 58: Makena Landing Beach Visitation by Nighttime Location – (January 2019 to June 2024 Including Covid-19 Period Data)

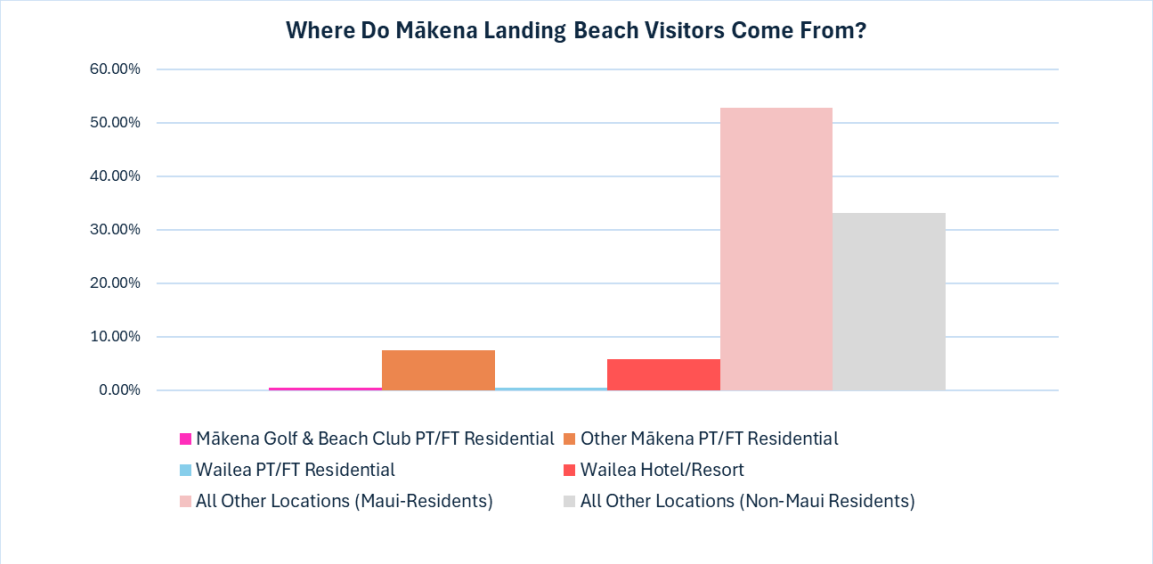


Figure 59: Makena Landing Beach Visitation by Nighttime Location – (January 2019 – June 2024 Excluding Covid-19 Period Data)

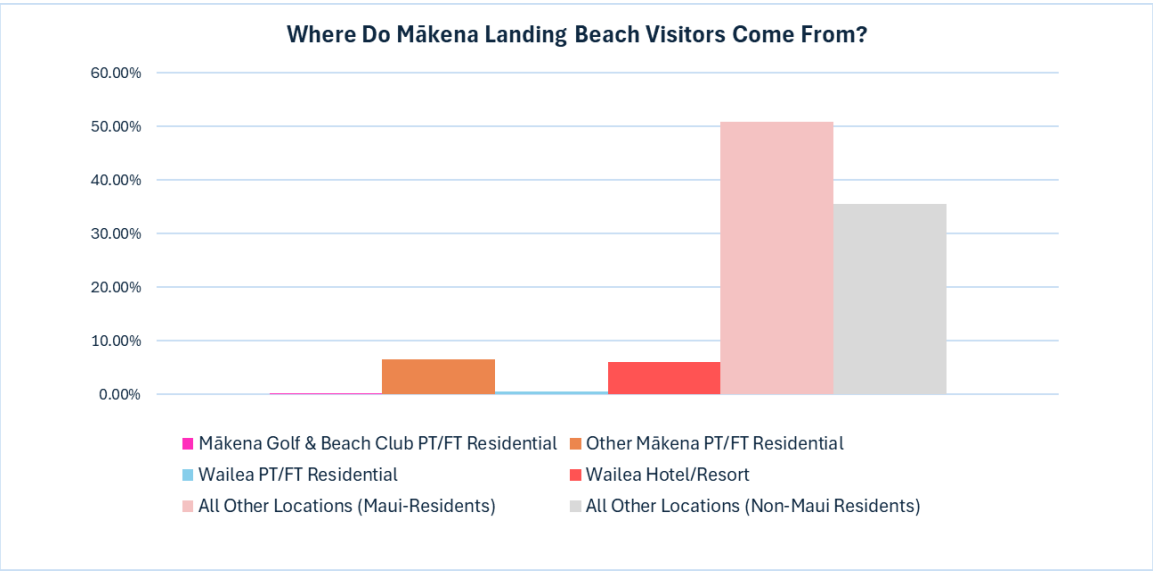


Figure 60: Maluaka Beach Visitation by Nighttime Location – (January 2019 to June 2024 Including Covid-19 Period Data)

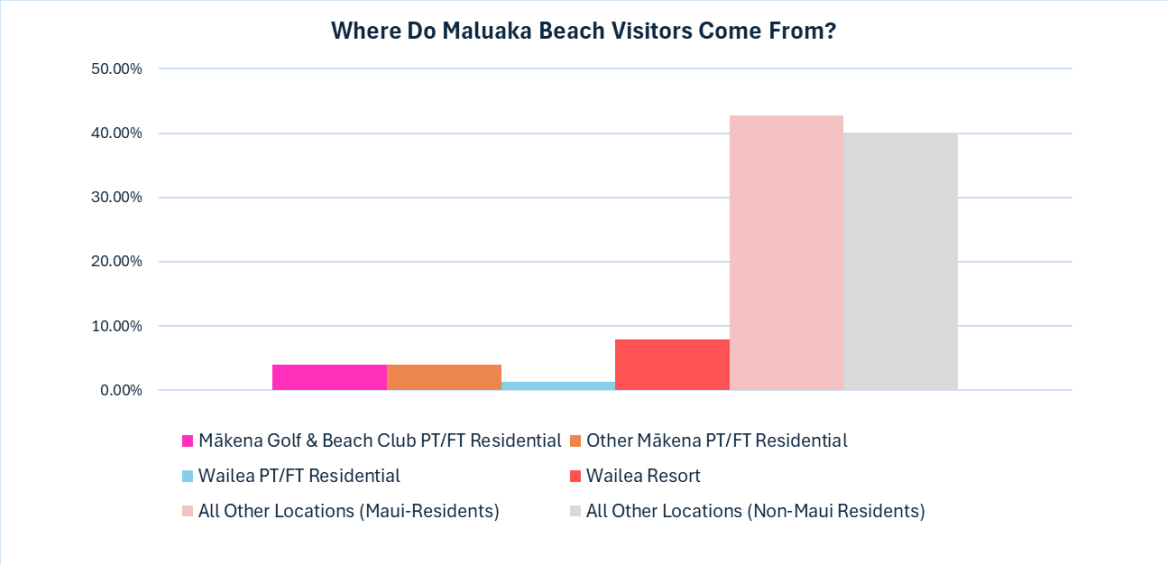


Figure 61: Maluaka Beach Visitation by Nighttime Location – (January 2019 – June 2024 Excluding Covid-19 Period Data)

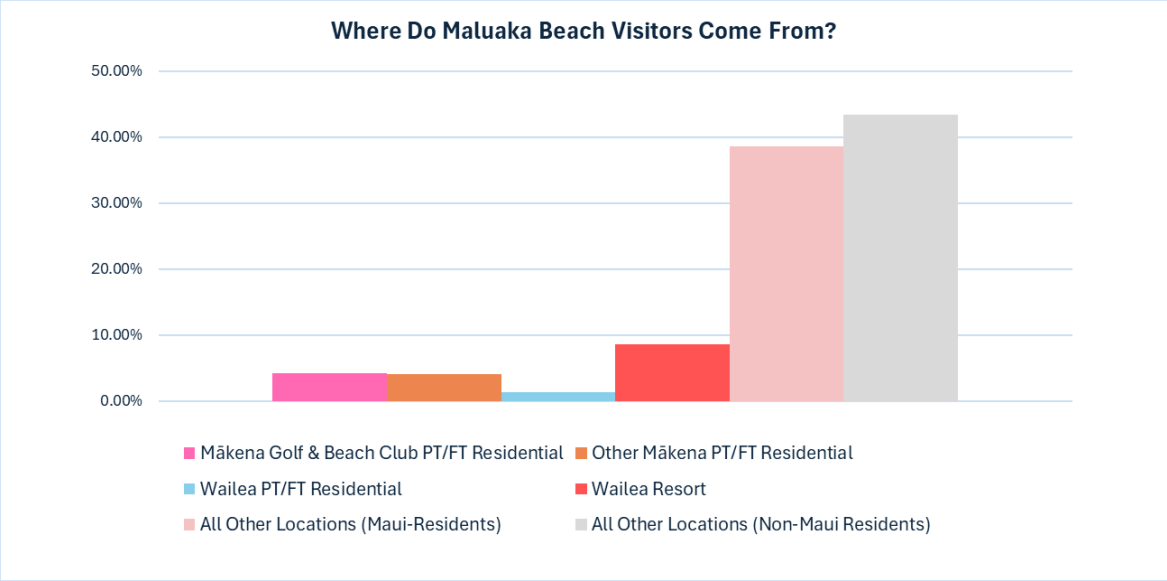


Figure 62: One'uli Beach Visitation by Nighttime Location – (January 2019 to June 2024 Including Covid-19 Period Data)

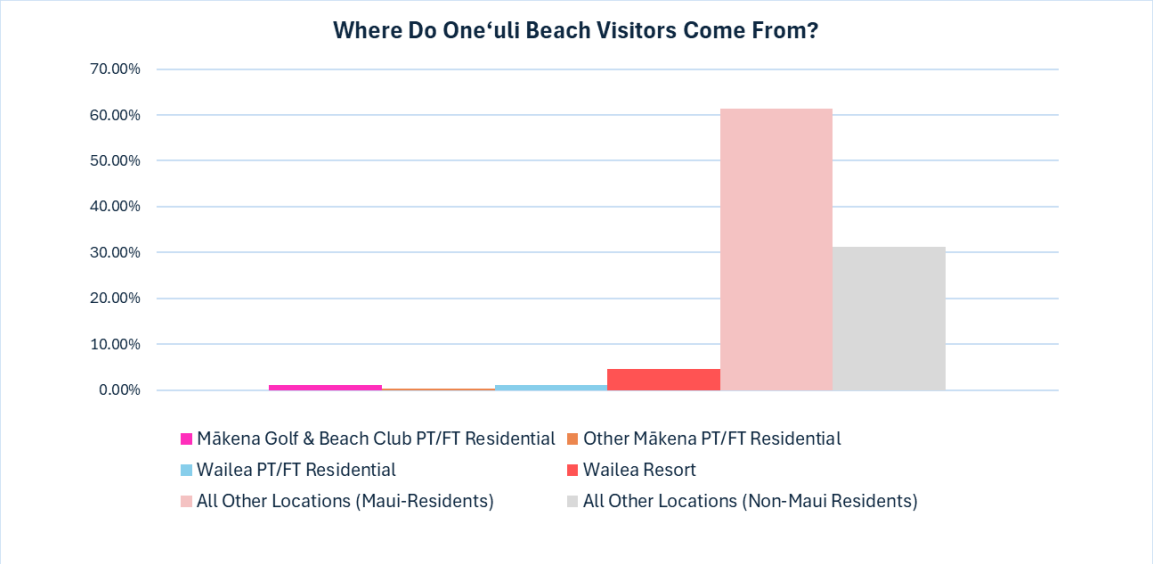


Figure 63: One'uli Beach Visitation by Nighttime Location – (January 2019 – June 2024 Excluding Covid-19 Period Data)

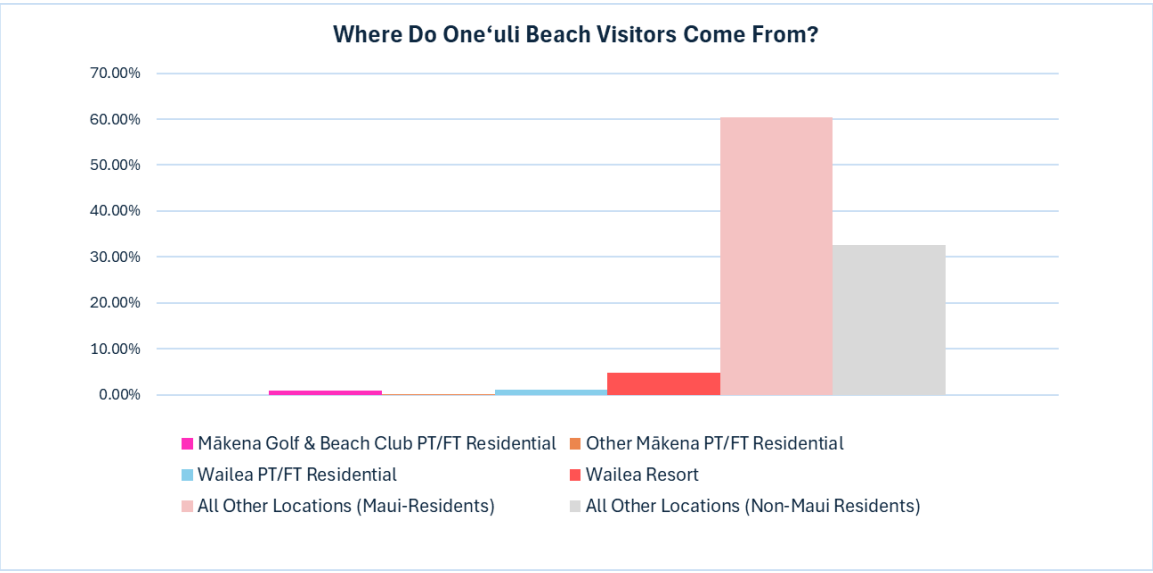


Figure 64: Pu'u'Ola'i (Little) Beach Visitation by Nighttime Location – (January 2019 to June 2024 Including Covid-19 Period Data)

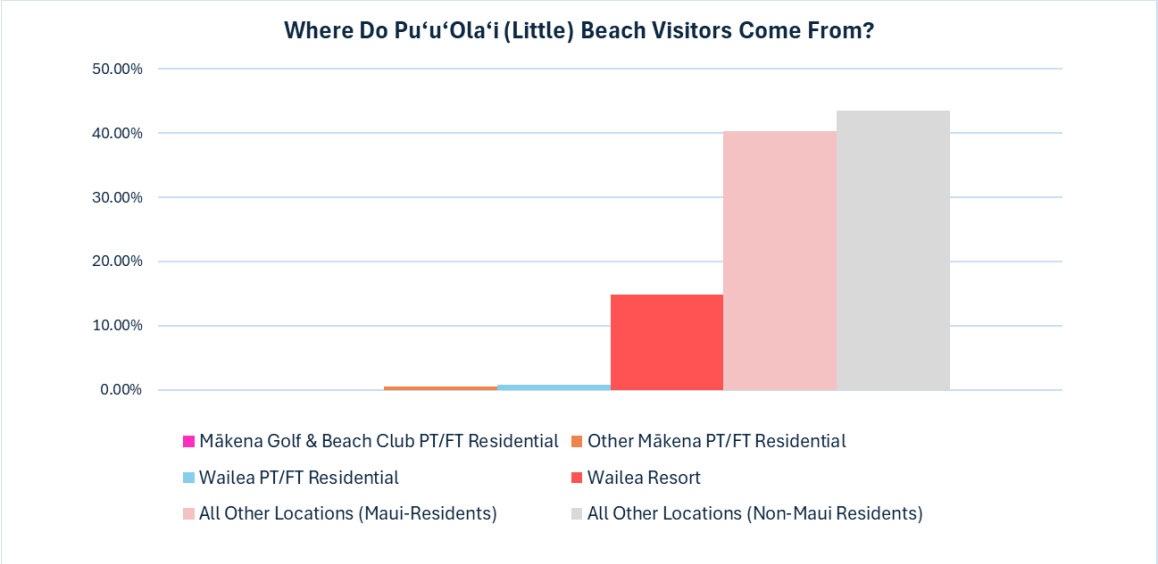


Figure 65: Pu'u'Ola'i (Little) Beach Visitation by Nighttime Location – (January 2019 – June 2024 Excluding Covid-19 Period Data)

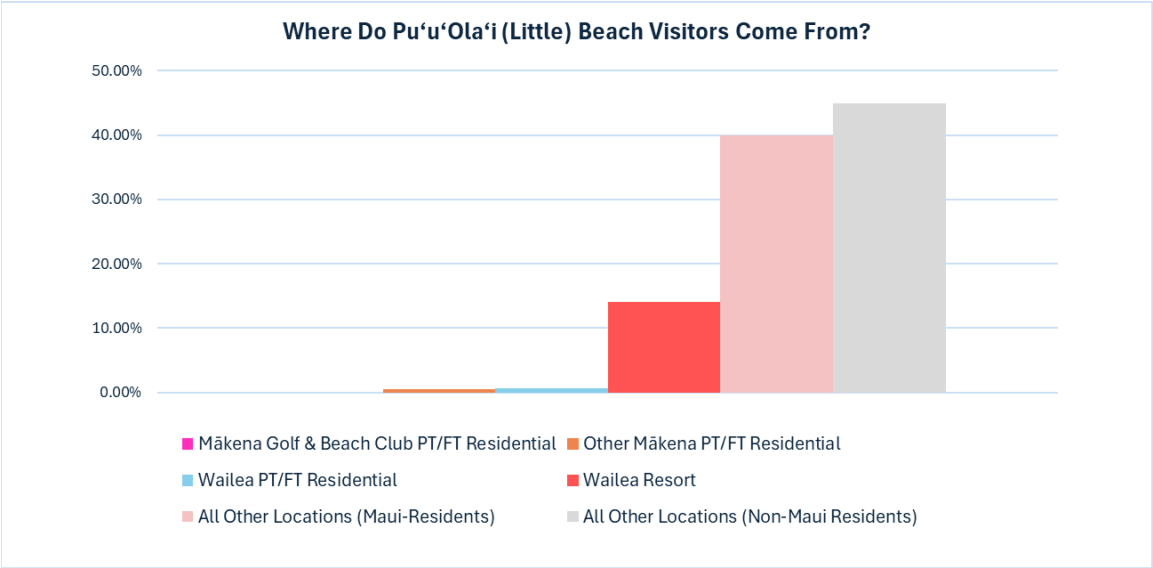


Figure 66: Makena State Park Beach (Big Beach) Visitation by Nighttime Location – (January 2019 to June 2024 Including Covid-19 Period Data)

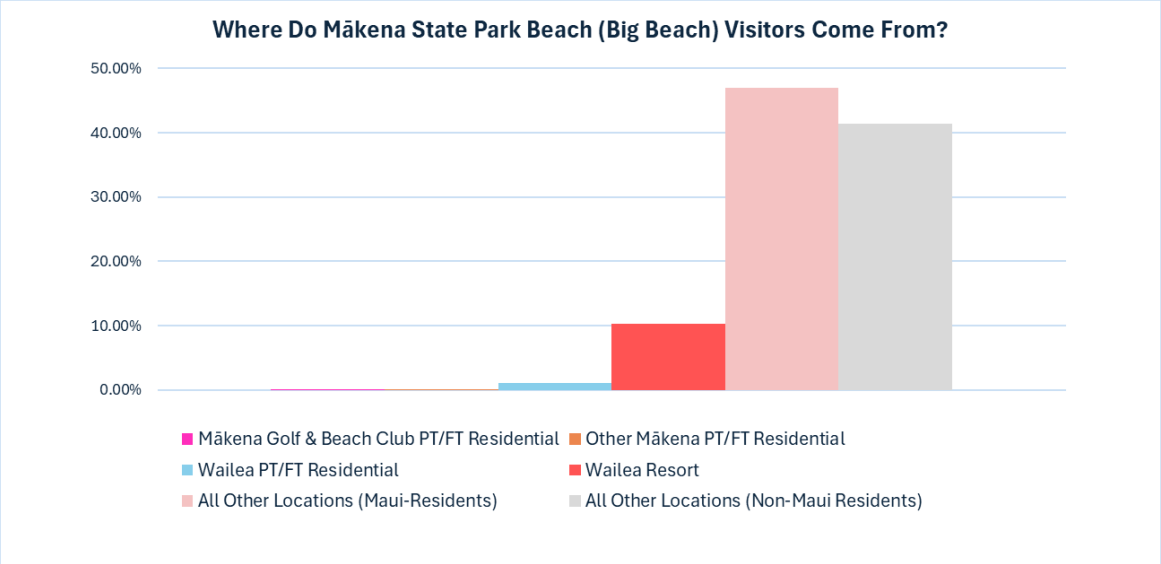


Figure 67: Makena State Park Beach (Big Beach) Visitation by Nighttime Location – (January 2019 – June 2024 Excluding Covid-19 Period Data)

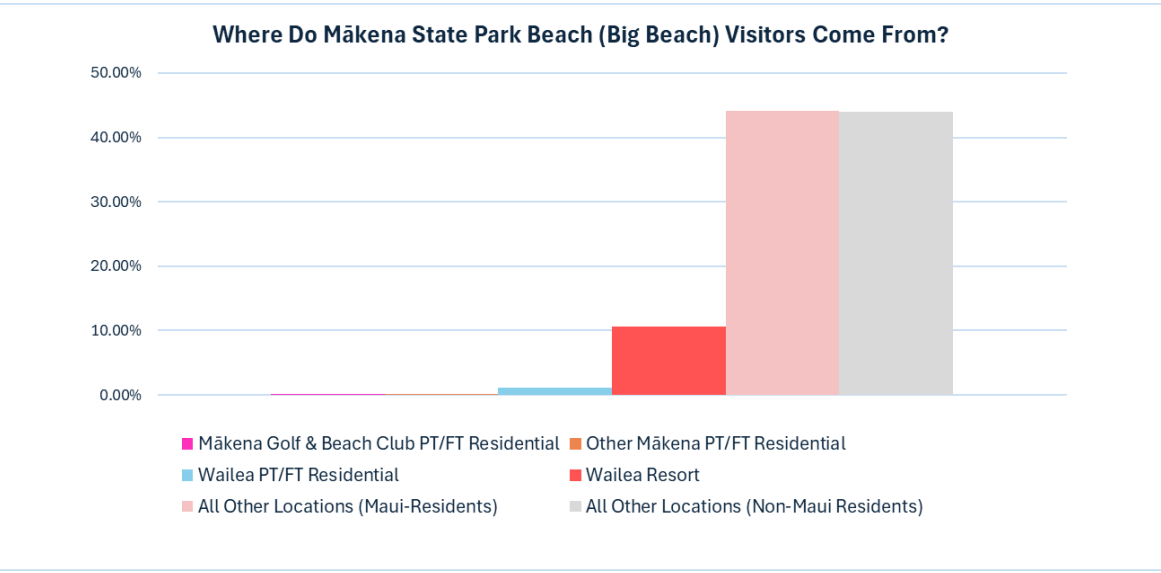


Figure 68: Total (Visited Any Beach) Visitation by Nighttime Location – (January 2019 to June 2024 Including Covid-19 Period Data)

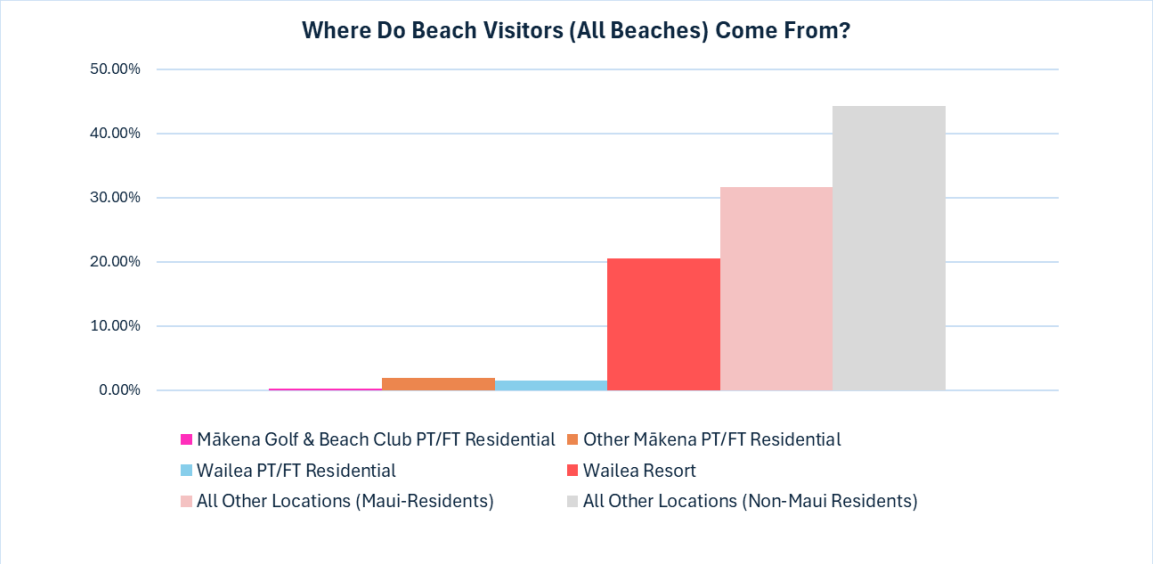
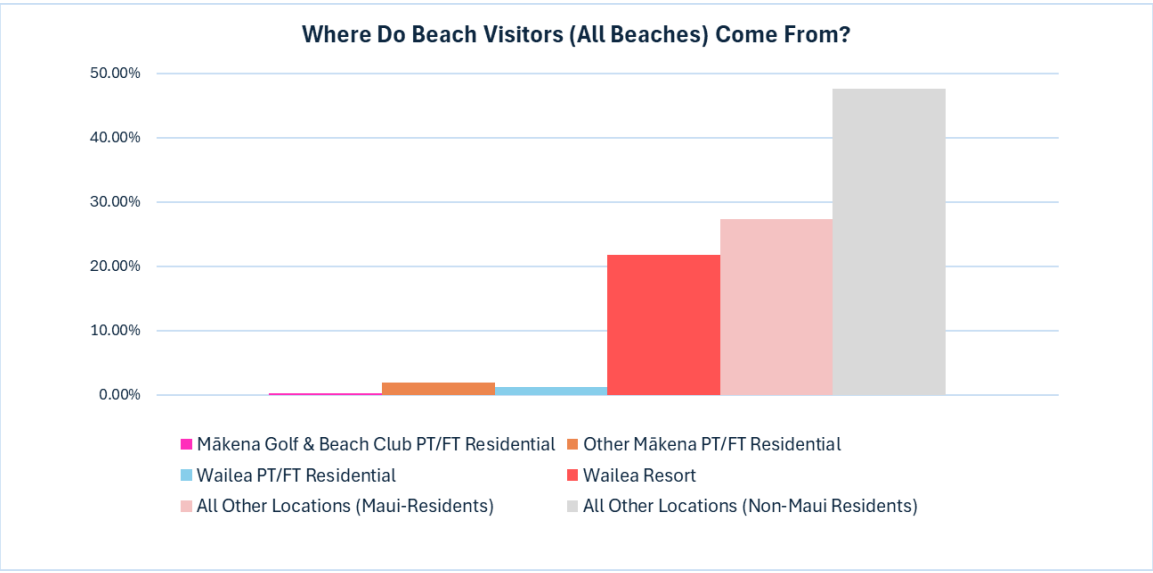


Figure 69: Total (Visited Any Beach) Visitation by Nighttime Location – (January 2019 – June 2024 Excluding Covid-19 Period Data)



APPENDIX V

ECONOMIC AND FISCAL IMPACT STUDY

Economic and Fiscal Impact Study

MĀKENA MAUKA
MAKENA, MAUI

(TMK NOS. (2)2-1-005:108, (2)2-1-006:036 and 057, (2)2-1-007:068, 092 and 093, (2)2-1-008:078, 079, 081, and 090, and (2)2-1-031:036(por.))

Prepared for:

AREG AC MAKENA PROPCO LLC

July 2025

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Planning. Project Management. Sustainable Solutions.

Economic and Fiscal Impact Study

MĀKENA MAUKA
MAKENA, MAUI

(TMK NOS. (2)2-1-005:108, (2)2-1-006:036 and 057, (2)2-1-007:068, 092 and 093, (2)2-1-008:078, 079, 081, and 090, and (2)2-1-031:036(por.))

Prepared for:

AREG AC MAKENA PROPCO LLC

July 2025

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MUNEKIYO HIRAGA

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Executive Summary

This Economic and Fiscal Impact Study has been prepared for the proposed Mākena Mauka project, a low-density master planned residential community within the Makena area of South Maui, to assess (1) the short-term construction-related impacts of the project, and, (2) the long-term operational impacts of the project at full build-out. The project will involve development of market rate housing together with workforce housing with a mixture of rural and single-family lots and multi-family residential units, within an area that has largely been planned for such uses for decades. The project will incorporate the existing 18-hole Makena North Golf Course and the 18-hole Makena South Golf Course (to be renovated as part of the project), together with a community gathering place, hiking trails, programs to support connectivity, walking, bicycling, golf cart paths, beach parking for the public, areas reserved for conservation/open space, and areas reserved for public beach access. The project will result in positive economic and fiscal impacts to the State of Hawai'i and the County of Maui both during construction and at full-build out (during operations), as summarized below.

CONSTRUCTION PERIOD

The construction of the project is anticipated to cost approximately $4.0 billion over 30 years. Project construction would directly result in the creation of approximately 330 full-time equivalent (FTE)[1] jobs per year, with associated total earnings of $30.3 million annually. **The total impacts of construction, including direct, indirect, and induced impacts, would be approximately 840 FTE jobs per year with associated earnings of $62.2 million.** Project construction and initial sales of market rate housing units will generate general excise tax (GET), personal income tax, corporate income tax, and conveyance tax revenues. Given that the State and the County would not bear any costs associated with the construction activity, **the State and County would both experience a positive fiscal impact during the construction period of $12.3 million and $1.0 million annually from construction activity related tax revenues, respectively.**

FULL BUILD-OUT (OPERATIONS)

The proposed project is anticipated to include both full-time and part-time residents. While all of the workforce housing units are assumed to be occupied by full-time residents, 90 percent of the market-rate units are anticipated to be occupied by part-time residents (assumed to be present on the island approximately 20 percent of the time). The operation of the proposed Mākena Mauka project would create new employment. The proposed project is anticipated to generate total onsite net new sales of $59.3 million per year, including revenues from club operations as well as rent revenues for the workforce housing units at the Mākena Mauka property (excluding

[1] Full-time equivalent (FTE) is a unit to measure employed persons who work different hours per week comparable. FTE is typically based on a 40-hour work week. For example, a full-time employee counts as 1.0 FTE, while a part-time employee who works 20 hours a week counts as 0.5 FTE.

real estate sales). In addition to the existing jobs at the property, **the operation of new components of Mākena Mauka, including housing, the clubhouse, and the renovated South Golf Course, will create approximately 112 additional FTE jobs directly with associated earnings of $5.6 million annually** through club operation and additional golf course operation over the existing golf course operation. In addition, new residents of Mākena Mauka will also spend money offsite (outside of the property) within the local economy, which will create positive economic impacts on Maui. For example, if all households of the market units spend $250.00[2] a day while on Maui, the total offsite economic impacts on Maui would be approximately $38,000.00 a day[3] (or approximately $14 million annually).

From a fiscal perspective, an increase in the cost of government services is applied for the property based on a per-capita cost factor for both the State and County and number of residents accommodated at the property. Meanwhile, both the State and County will realize new tax revenues from the proposed project, **resulting in a net positive fiscal impact of $12.0 million for the State and $48.3 million for the County on an annual basis.**

[2] Estimate of daily household spending provided by AREG AC Makena Propco LLC (dba Mākena Golf & Beach Club Owners).

[3] The market units actively used in any given day is approximately 152 units (full-time market units [54 units] + 20 percent of part-time market units [489 units x 20 percent = 97.8 units] = 151.8 units). If each market unit household spends $250.00 /day, it would result in $38,000.00 total spending per day.

INTRODUCTION

I. INTRODUCTION

This Economic and Fiscal Impact Study (Study) has been prepared for the proposed Mākena Mauka Project (hereafter referred to as the "proposed project"), a residential and golf club development in Makena, Maui, Hawai'i. The study presents an analysis of the short-term, development-related impacts to the local economy, as well as long-term impacts of the project at full build-out. Likewise, fiscal impacts to the State of Hawai'i (State) and County of Maui (County) are analyzed for both periods.

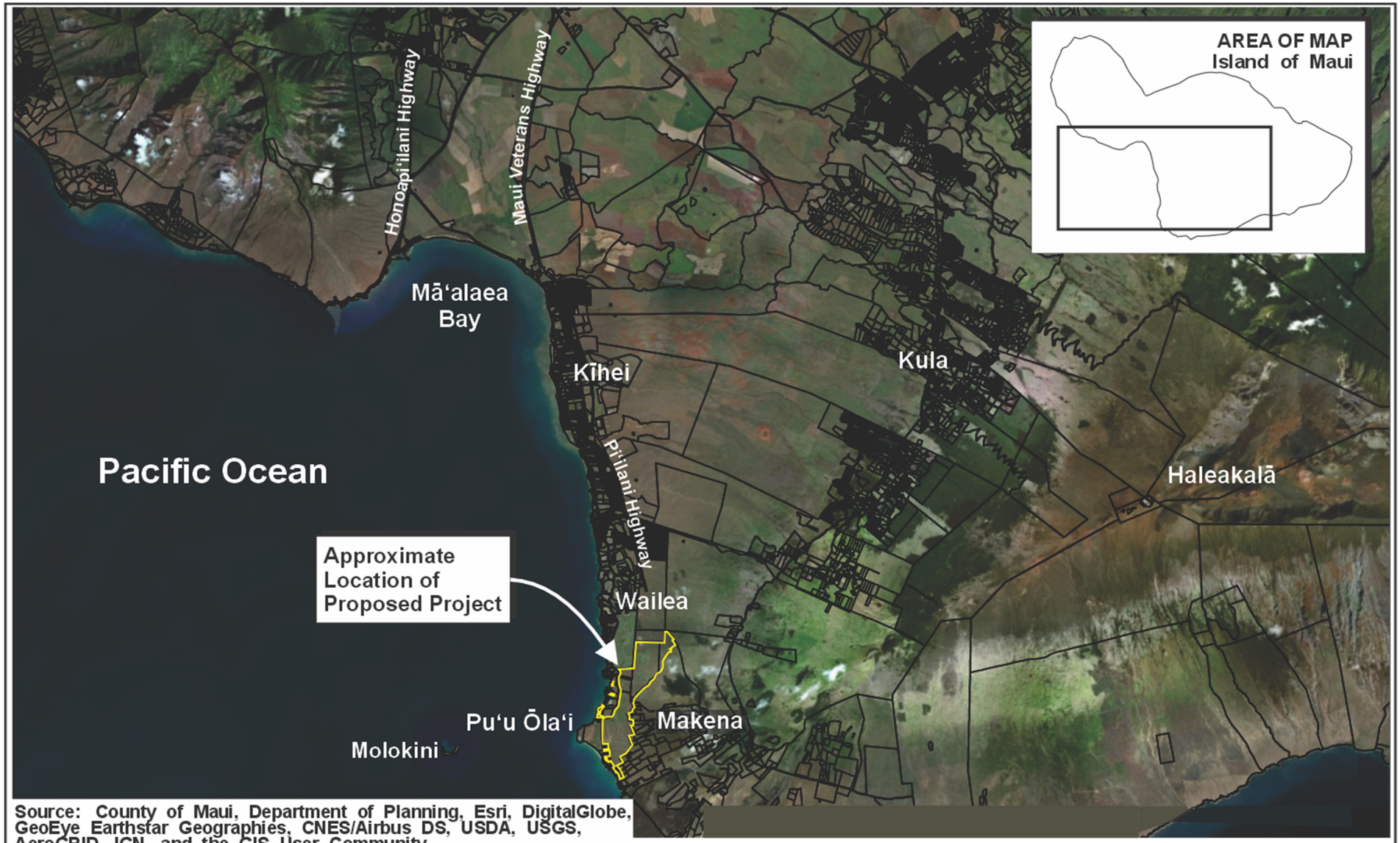
A. PROJECT OVERVIEW

AREG AC Makena Propco LLC doing business as Mākena Golf & Beach Club Owners proposes the development of Mākena Mauka, a low-density master planned residential community within the Makena area of South Maui (this area is sometimes referred to as Makena Resort). Mākena Mauka will offer market rate housing together with workforce housing with a mixture of rural and single-family lots and multi-family residential units within an area that has largely been planned for such uses for decades, all located mauka of Makena Alanui Road. See **Figure 1**, **Figure 2**, and **Figure 3**. The proposed development program is summarized in **Table 1**. It is noted that the preliminary conceptual plan anticipates approximately 543 market rate housing units and 109 workforce housing units. No short time vacation rental will be allowed within the project.

Table 1. Development Program

	Total	Unit
Residential		
Market Rate		
Single-Family Residential	180	units
Multi-Family Residential	363	units
Subtotal	**543**	**units**
Workforce Housing		
Single-Family For Rent	15	units
Multi-Family For Rent	94	units
Subtotal	**109**	**units**
Total Residential	**652**	**units**
Ancillary/Commercial		
Restaurant, Clubhouse, Kitchen, Locker Rooms, Fitness, Back of House	48,000	sq.ft.
Golf Maintenance, Staff Center, Golf Operations, Receiving Area	63,000	sq.ft.
Arrival Hale, Farm Operations, Restrooms	24,000	sq.ft.
Total Commercial	**135,000**	**sq.ft.**
Golf Courses		
Existing North Golf Course	197	acres
Existing Makena South Golf Course	225	acres
Total Golf Courses	**422**	**acres**

Source: Mākena Golf & Beach Club Owners, 2025.
Prepared by: Munekiyo Hiraga, 2025.



Source: County of Maui, Department of Planning, Esri, DigitalGlobe, GeoEye Earthstar Geographies, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 1

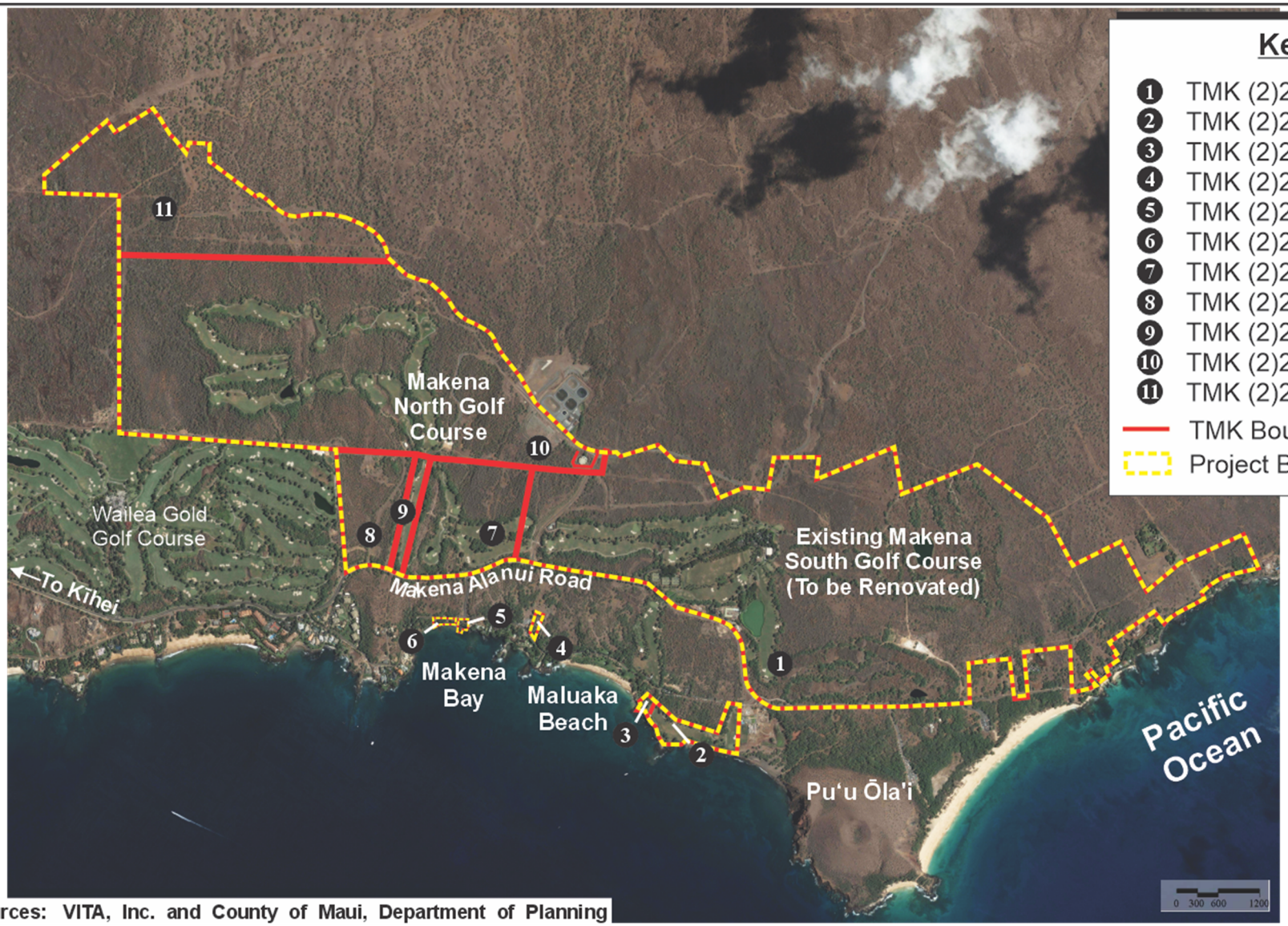
Mākena Mauka
Regional Location Map

0 8250 Feet
4125 16500

Prepared for: AREG AC Makena Propco LLC

MUNEKIYO HIRAGA

ATCMakena/Makena MP EIS 2100/Applications/Figures/Regional Location



Sources: VITA, Inc. and County of Maui, Department of Planning

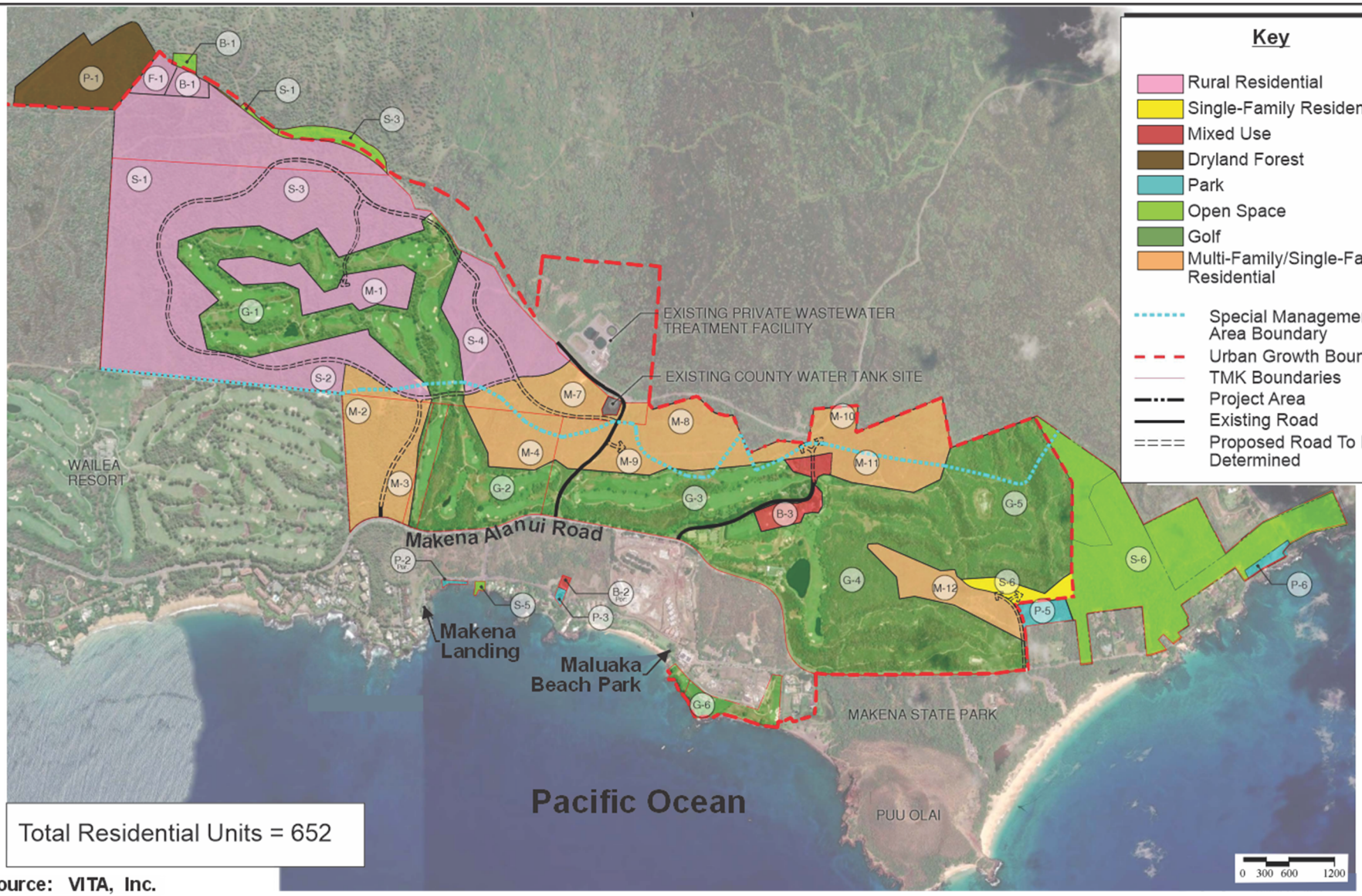
Figure 2

Mākena Mauka
Property Location Map

Prepared for: AREG AC Makena Propco LLC

MUNEKIYO HIRAGA

ATCMakena/Makena MP EIS 2100/Applications/Figures/Property Location



Source: VITA, Inc.

Figure 3

Mākena Mauka

Conceptual Land Use Plan

Prepared for: AREG AC Makena Propco LLC

MUNEKIYO HIRAGA

ATCMakena/Makena MP EIS 2100/Applications/Figures/ConcLandUse.FE

The project will incorporate the existing 18-hole Makena North Golf Course and the 18-hole Makena South Golf Course (to be renovated as part of the project), together with a community gathering place, hiking trails, programs to support connectivity, walking, bicycling, golf cart paths, beach parking for the public, areas reserved for conservation/open space, and areas reserved for public beach access. The current vision for the Mākena Mauka land plan includes 652 housing units, including 109 onsite residential workforce housing units, and approximately 135,000 square feet (sq. ft.) of operational support buildings, which include golf maintenance, staff offices, restaurants, back of house, golf operations and other uses; within the approximately 1,043.71-acre total project area which includes approximately 473 acres of parcels proposed for residential development. The project will provide workforce housing in perpetuity. According to Section 2.96.040, Maui County Code (MCC), if workforce housing units remain available only to income-qualified groups in perpetuity, developers are required to provide at least 20 percent of the total number of market units. As such, the proposed 109 onsite workforce housing units (20 percent of the total market units) will satisfy the residential workforce housing requirements. It is noted that Section 2.96.020, MCC defines "Residential workforce housing unit" as *a unit or lot to be sold or rented to residents within one of the following income groups as established by the department:*

1. *"Very low income", which are those households whose gross annual family income is fifty percent or less of the area median income as established by HUD, or as adjusted by the department, for Hana, Lanai, and Molokai.*

2. *"Low income", which are those households whose gross annual family income is more than fifty percent, but not more than eighty percent of the area median income as established by HUD, or as adjusted by the department, for Hana, Lanai, and Molokai.*

3. *"Below-moderate income", which are those households whose gross annual family income is more than eighty percent, but not more than one hundred percent of the area median income as established by HUD, or as adjusted by the department, for Hana, Lanai, and Molokai.*

4. *"Moderate income", which are those households whose gross annual family income is more than one hundred percent, but not more than one hundred twenty percent of the area median income as established by HUD, or as adjusted by the department, for Hana, Lanai, and Molokai.*

5. *"Above-moderate income", which are those households whose gross annual family income is more than one hundred twenty*

percent, but not more than one hundred forty percent of the area median income as established by HUD, or as adjusted by the department, for Hana, Lanai, and Molokai.

Preliminarily, approximately one third of the proposed workforce housing units will be available for households earning 80 percent of the Area Median Income (AMI) or less, another one third of the units will be available for households earning between 81 to 100 percent of the AMI, and the remaining one third of the units will be available for households earning between 101 to 120 percent of the AMI.

B. METHODOLOGY

An overview of the methodology used for the economic and fiscal impact analyses is provided below. Assumptions utilized in this analysis are presented in the note sections of the tables included in this report, as applicable. All figures are reported in 2025 dollars.

1. Economic Impact Assessment

The development and operational economic impacts of the proposed Mākena Mauka Project were analyzed using the *Hawai'i State Input-Output Study: 2017 Benchmark Report*, which was prepared by the State Department of Business, Economic Development, and Tourism (DBEDT) in 2022. The Input-Output (I-O) analysis provides information on the relationships between industries, final users, and factors of production within an economy to determine the role and relative importance of each sector. Specifically, the I-O analysis provides multipliers for direct, indirect, and induced effects for output, earnings, and employment resulting from an exogenous change in an industry's final demand. In this case, the changes in the economy that are analyzed are construction spending for development and resident spending resulting from the project at full build-out. The multipliers measure the economic activity resulting from an industry or household spending an additional dollar.

The State Input-Output Study reports direct, indirect, and induced output (dollars), employment, and labor income. Direct, indirect, and induced effects are described below:

- **Direct effects** – Direct effects refer to immediate effects associated with a change in the economy. For example, direct effects could be the dollar value of a construction budget or the number of jobs associated with that construction budget.
- **Indirect effects** – Indirect effects relate to inter-industry spending or the secondary impacts of a change. These impacts occur when industries buy goods and services from other local industries. In the construction sector,

for example, indirect effects would include contractor expenditures on construction materials such as wood or steel.

- **Induced effects** – Induced effects capture household spending impacts generated when people who benefit from direct or indirect impacts spend their income on local goods and services. For example, a construction industry employee may spend his or her income on groceries or eating out at a restaurant.

For the purposes of this analysis, indirect and induced effects will be reported together and collectively be referred to as "indirect impacts".

2. Fiscal Impact Assessment

Fiscal impacts were analyzed for the State of Hawai'i and County of Maui both during the construction period and at full build-out of the project. This analysis identifies the key revenues, namely taxes, that the State and County would collect from the proposed project. For each major source, a dollar estimate of revenues is provided based on project characteristics and assumed occupancy patterns and market conditions. It is noted that this study is not intended to provide a comprehensive analysis of all revenue sources that would be impacted but rather focuses on the largest revenue sources, in terms of dollars collected.

The analysis of fiscal impacts to the State and County are based on fiscal year 2025 budget and tax rates. The analysis assumes that the structure of tax revenues and government expenditures presented in the 2025 budgets remains the same. If taxation or spending policies are substantially changed in the future, the projected fiscal impacts of the proposed project would differ.

The cost of providing government services is largely linked to the number of persons served. Generally, as the "service population" increases, there is a need to increase spending for services such as police and fire protection and other government functions. A common practice in fiscal impact analysis for jurisdictions in the continental United States is to define a service population as 100 percent of residents residing within a jurisdiction plus 50 percent of employees. This reflects the fact that while residential population is generally considered to constitute a larger share of demand for services, local employment contributes to a jurisdiction's daytime population, resulting in an increase in demand for government services. This methodology for defining service population is appropriate for non-island economies. However, on Maui and in the State of Hawai'i more broadly, the residents and employees on the island and in the State are generally one and the same. For the most part, employees do not reside outside of the State or County that they work in. Hawai'i is also unique due to the large influx of visitors to the State each day that adds to the "de facto" population. According to the State of Hawai'i Data Book 2023 (Department of Business,

Economic Development & Tourism, 2023), “de facto” population includes all persons physically present in an area regardless of military status or usual place of residence. On the other hand, the resident population is defined as the number of persons whose usual place of residence is in an area. Because the majority of the market-rate rate housing units is anticipated to be occupied by part-time residents whose usual places of residence are outside of Hawai‘i, the part-time residents of the proposed Mākena Mauka would be only captured by “de facto” population. For these reasons, the service population utilized for this fiscal impact analysis is based on “de facto” population of the County and State, or the population of people physically present, including residents and tourists. The population of the project site will include residents of the new residential units proposed.

It is noted that this report utilizes the 2022 de facto population to establish a baseline per capita cost of government services. Population parameters have been impacted following the August 2023 Maui wildfires. While the 2025 de facto population would typically be estimated by applying the historic average annual growth rate for both the State and County to correspond with the fiscal year 2025 budget, because the August 2023 Maui wildfires have impacted both resident and visitor population levels on the island of Maui, the 2022 de facto population data was utilized as status quo, without applying an annual growth rate.

ECONOMIC IMPACT ASSESSMENT

II

II. ECONOMIC IMPACT ASSESSMENT

A. ECONOMIC IMPACTS OF CONSTRUCTION ACTIVITIES

The proposed project will generate positive short-term economic impacts associated with construction jobs and spending. The construction period is estimated to be 30 years. The development cost of the proposed project, excluding land and financing costs, is anticipated to total approximately $4.0 billion over 30 years. This includes $3.8 billion for residential components, $162.0 million for ancillary/commercial components, and an additional $36.0 million for golf related improvements. The total construction cost translates into average construction expenditures of approximately $132.6 million per year. However, in practice, construction expenditures will vary from year to year. See **Table 2**.

Table 2. Project Construction Costs

	Total	Unit	Construction Cost per Unit/Sq. Ft.	Total Construction Cost
Residential				
Market Rate				
Single-Family Residential	180	units	$8,500,000	$1,530,000,000
Multi-Family Residential	363	units	$6,000,000	$2,178,000,000
Subtotal	**543**	**units**		**$3,708,000,000**
Workforce Housing				
Single-Family Residential (Rental)	15	units	$700,000	$10,500,000
Multi-Family (Rental)	94	units	$650,000	$61,100,000
Subtotal	**109**	units		**$71,600,000**
Total Residential	**652**	units		**$3,779,600,000**
Ancillary/Commercial				
Restaurant, Clubhouse, Kitchen, Locker Rooms, Fitness, Back of House	48,000	sq.ft.	$1,200	$57,600,000
Golf Maintenance, Staff Center, Golf Operations, Receiving Area	63,000	sq.ft.	$1,200	$75,600,000
Arrival Hale, Farm Operations, Restrooms	24,000	sq.ft.	$1,200	$28,800,000
Total Commercial	**135,000**	**sq.ft.**		**$162,000,000**
Golf Courses				
Existing North Golf Course	197	acres	-	$0
Existing South Golf Course to be improved	225	acres	-	$36,000,000
Total Golf Courses	**422**	**acres**	**-**	**$36,000,000**
TOTAL CONSTRUCTION COST				**$3,977,600,000**
ANNUAL AVERAGE				**$132,586,700**

Source: Mākena Golf & Beach Club Owners, 2025.
Prepared by: Munekiyo Hiraga, 2025.

The economic impacts associated with the development of the project are summarized in **Table 3**. Construction activities related to the project are anticipated to directly generate approximately 9,870 full-time equivalent (FTE) jobs in the construction industry. The construction is anticipated to span approximately 30 years. Therefore, the construction of the proposed Mākena Mauka project would generate approximately 330 FTE jobs per year in the construction industry. While recognizing that construction employment will fluctuate over the different phases of development, for the purpose of this study's analysis, it is assumed that the construction jobs would be distributed evenly across the 30-year development period.

Annual direct labor earnings (income) associated with development-related direct employment would total approximately $908.0 million, or $30.3 million annually, over the 30-year construction period. Refer to **Table 3**.

It is noted that according to the University of Hawai'i Economic Research Organization's (UHERO) Forecast for the State of Hawai'i (2025 Second Quarter), while the construction market remains strong as of the second quarter of 2025, it is projected that construction employment would begin to gradually recede by 2027. Given that construction of the proposed project will begin in 2028 or later and will be spread over the 30-year period, the project is not anticipated to present a significant adverse impact on the availability of construction labor for the wildfire rebuilding efforts.

Table 3. Construction-Period Economic Impacts

Item	Multiplier	Amount	Unit
Assumed Construction Period		30	years
Construction Expenditure and Related Sales			
Construction Cost, Total		$3,977,600,000	
Hawaii	70%	$2,784,320,000	
Imports	30%	$1,193,280,000	
Construction Cost, Annual Average		$132,586,700	per year
Indirect Sales	1.14 of Hawaii expenditure	$3,174,124,800	
Indirect Sales, Annual Average		$105,804,200	per year
Total Sales		7,151,724,800	jobs
Total Sales, Annual Average		238,390,800	jobs per year
Employment (onsite & offsite)			
Construction jobs	2.48 x sales/$1 mil	9,870	jobs
Annual Average		330	jobs per year
Indirect Jobs Generated by Construction	1.54 per direct job	15,200	jobs
Annual Average		510	jobs per year
Total Employment		25,070	jobs
Annual Average		840	jobs per year
Earnings			
Construction Earnings (a)	$ 92,000 per job	$ 908,040,000	
Annual Average		$ 30,268,000	per year
Earnings for Indirect Jobs	$ 63,000 per job	$ 957,600,000	
Annual Average		$ 31,920,000	per year
Total Earnings		$ 1,865,640,000	
Annual Average		$ 62,188,000	per year

Note:
(a) Average annual salary of construction related industry types.
(b) Average annual salary of all industry types (including government).
Sources:
State Department of Business, Economic Development and Tourism's 2017 State Input-Output Study for Hawai'i, 2022;
State of Hawai'i, Department of Labor and Industorial Relations, 2023 Employment and Payrolls in Hawai'i, October 2024.
Prepared by: Munekiyo Hiraga, 2025.

In addition to direct impacts, the development of the proposed project will generate indirect impacts associated with the purchase of goods and services by construction companies and their employees. Those employees and their families will, in turn, purchase goods and services from other companies, resulting in induced economic impacts. The indirect sales during the construction period is estimated at $105.8 million per year. This indirect spending will generate additional jobs in the economy. Total indirect employment over the development period would average approximately 510 FTE jobs per year with associated earnings of $31.9 million per year. Refer to **Table 3**.

B. ECONOMIC IMPACTS AT FULL BUILD-OUT

The analysis presented herein assesses the economic impacts of the project at full-build out and evaluates the net impact of the new development. It is noted that during the 30-

year construction period, completed residential units will be sold/occupied as they become available. As such, operational economic impacts at any given time during the construction period would be roughly proportional to the level of completion.

The proposed project is anticipated to include both full-time and part-time residents. While all of the workforce housing units are assumed to be occupied by full-time residents, 90 percent of the market-rate units are anticipated to be occupied by part-time residents (assumed to be on the island approximately 20 percent of the time).

1. Employment

As shown in **Table 4** below, the Makena North Golf Course operations currently employ 141 FTE. The number of jobs in FTE is equal to the number of full-time employees plus half the number of part-time employees. At build-out, the proposed project would generate new employment for the renovated Makena South Golf Course, other club operations, and residential and common area maintenance. The total employment anticipated at full build-out is 253 FTE jobs, including the existing 141 FTE jobs at the Makena North Golf Course. As a result, the project would result in a net increase of 112 direct FTE jobs.

Table 4. Onsite Employment at Operations

	Full-Time Equivalent (FTE)		
	Existing	**Proposed**	**Total at Build Out**
Golf Courses Operations	61	39	100
Other Club Operation	58	30	88
Residential Maintenance	0	21	21
Common Areas Maintenance	22	22	44
Total	**141**	**112**	**253**
Net Increase (Decrease) in Employment			**112**

Source: Mākena Golf & Beach Club Owners, 2025.
Prepared by: Munekiyo Hiraga, 2025.

2. Club Operation Revenues

Table 5 below provides a description of estimated gross revenues generated by the Mākena Mauka project operations:

Table 5. Annual Club Operation Revenues

Annual Revenue	Existing	Proposed	Total at Build Out
Golf Course Operations & Retail	$1,500,000	$2,250,000	$3,750,000
F&B and Events	$2,100,000	$3,900,000	$6,000,000
Residential Services	$0	$3,000,000	$3,000,000
Outdoor/Beach Services, Spa, and Fitness	$150,000	$2,700,000	$2,850,000
Misclleneous	$100,000	$44,400,000	$44,500,000
Total	**$3,850,000**	**$56,250,000**	**$60,100,000**
Net Increase (Decrease) in Revenues			**$56,250,000**

Source: Mākena Golf & Beach Club Owners, 2025.
Prepared by: Munekiyo Hiraga, 2025.

As described earlier, the proposed project would include two (2) golf courses. The existing Makena North Golf Course is currently in operation and the Makena South Golf Course was closed in 2008. As part of the project, the renovated Makena South Golf Course will generate new revenues. In addition, commercial operations at the clubhouse, as well as food and beverage and other miscellaneous activities, will generate additional revenues. The total net increase in revenues from the proposed club operations is estimated to be approximately $56.3 million per year.

3. Workforce Housing Rent Revenues

The Mākena Mauka Project will include 109 residential workforce housing units. Preliminarily, approximately one third of the units will be available for households earning 80 percent of the AMI or less, another one third of the units will be available for households earning between 81 to 100 percent of the AMI, and the remaining one third of the units will be available for households earning between 101 to 120 percent of the AMI. Based on the County of Maui, Department of Housing Affordable Rent Guidelines 2024, the total rent revenues from the workforce housing units are estimated to be $3.0 million per year. See **Table 6**.

Table 6. Annual Workforce Housing Rent Revenues

Unit Type	AMI 80%			AMI 100%			AMI 120%			Total Units	Total Annual Rent Revenues	
	Unit No.	Monthly Rent/unit (a)	Annual Rent Revenues	Unit No.	Monthly Rent/unit (a)	Annual Rent Revenues	Unit No.	Monthly Rent/unit (a)	Annual Rent Revenues			
Single-Family												
3-bedroom	5	$2,305	$138,300	5	$2,881	$172,860	5	$ 3,457	$207,420	15 units	$ 518,580	per year
Single-Family Subtotal	5	-	$138,300	5	-	$172,860	5	-	$207,420	**15 units**	**$ 518,580**	**per year**
Multi-Family												
2-bedroom	14	$1,995	$335,160	14	$2,493	$418,824	12	$ 2,992	$430,848	40 units	$ 1,184,832	per year
1-bedroom	12	$1,662	$239,328	12	$2,078	$299,232	12	$ 2,493	$358,992	36 units	$ 897,552	per year
Studio	6	$1,551	$111,672	6	$1,939	$139,608	6	$ 2,327	$167,544	18 units	$ 418,824	per year
Multi-Family Subtotal	32	-	$ 686,160	32	-	$857,664	30	-	$ 957,384	**94 units**	**$ 2,501,208**	**per year**
										Net Increase (Decrease) in Revenues	**$ 3,020,000**	**per year**

(a) The rent revenues were calcurated based on the County of Maui, Department of Housing Affordable Rent Guideline 2024.
Source: County of Maui, Department of Housing
Prepared by: Munekiyo Hiraga, 2025.

4. Total Onsite Net Economic Impacts at Full Build-Out

The total net economic impacts of the proposed Mākena Mauka project are presented in **Table 7**. Impacts are presented for on-property activities, those involving spending and employment generated at the Mākena Mauka community, and do not include real estate sales.

Table 7. Net Operational Economic Impacts

Item	Multiplier or Source	Amount	Unit
Net New Sales			
Club Revenues	Table 5	$56,250,000	per year
Rent Revenues	Table 6	$3,020,000	per year
Subtotal, On-Property		$59,270,000	per year
Net New Employment	Table 4	112	jobs per year
Net New Earnings (a)	$ 49,800 per job	$5,577,600	per year

Notes:
(a) Earning calculated using 2025 projected average w age for the Amusements and Recreation industry on Maui.
Sources:
State Department of Business, Economic Development and Tourism's 2017 State Input-Output Study for Haw ai'i, 2022; State of Haw ai'i, Department of Labor and Industorial Relations, 2023 Employment and Payrolls in Haw ai'i, October 2024.
Prepared by: Munekiyo Hiraga, 2025.

The proposed Mākena Mauka Project is anticipated to generate new annual revenues of approximately $59.3 million and will employ 112 new FTE jobs in addition to the existing employment at the Makena North Golf Courses. Based on average estimated salaries and wages of $49,800.00 per year, total direct earnings associated with the new jobs would be approximately $5.6 million annually.

5. Offsite Economic Impacts

While not quantified in this analysis, new residents of the project are anticipated to spend money on goods and services within the County of Maui (outside of Mākena Mauka site). Due to the luxury nature of the market rate residential units within the Mākena Mauka community, future residents and owners are anticipated to be high-income households contributing to the local economy through offsite spending.

For example, if all households of the market units spend $250.00[4] a day while on Maui, the total offsite economic impacts on Maui would be approximately $38,000.00 a day[5] (approximately $14 million annually). Examples of offsite spending on Maui include, but are not limited to, food and beverage, car rental, owned vehicle registration and maintenance, gasoline, groceries, clothing, ride services, and leisure activities such as golf and charter fishing.

In addition, as noted previously, it is assumed that 90 percent of the market rate units will be occupied by part-time residents who will be on the island approximately 20 percent of the time. Because those homes will be occupied for a limited time of the year, various services to upkeep the homes will be required throughout the year. Those services would include, but not limited to, pool cleaning, window washing, interior cleaning, and landscapers. These economic impacts are not captured in this analysis and would be additive to the direct onsite impacts noted above.

[4] Estimate of daily household spending provided by AREG AC Makena Propco LLC (dba Mākena Golf & Beach Club Owners).

[5] The market units actively used in any given day is approximately 152 units (full-time market units [54 units] + 20 percent of part-time market units [489 units x 20 percent = 97.8 units] = 151.8 units). If each market unit household spends $250.00/day, it would result in $38,000.00 total spending per day.

FISCAL IMPACT ASSESSMENT

III

III. FISCAL IMPACT ASSESSMENT

This chapter presents an analysis of the fiscal impacts to the State and County general funds. One-time development related impacts, as well as ongoing annual fiscal impacts at project build-out are presented. As will be presented below, estimated annual fiscal impacts during the construction period for the State are $12.3 million/year and for the County are $1.0 million/year. Estimated annual fiscal impacts at full build-out for the State are $12.0 million/year and for the County are $48.3 million. These impacts are further described in the sections below.

A. FISCAL IMPACTS OF CONSTRUCTION ACTIVITIES

1. State of Hawai‘i

a. Revenues

The construction and sale of units at the proposed project would generate tax revenue for the State of Hawai‘i. The applicable taxes are the General Excise Tax (GET), personal income tax, corporate income tax, and conveyance tax.

GET, personal income tax, and corporate income tax revenues are estimated in **Table 8** and are based on the economic impacts associated with project construction presented in the preceding chapter.

Table 8. State Tax Revenues from Development Activities

General Excise Tax (GET)		
General Excise Tax Rate		
Final Sales	4.0%	
Indirect Sales	0.5%	
	Expenditures and Sales	**Tax Revenue**
Construction Expenditures (Taxed at 4.0%)	$3,977,600,000	$159,104,000
Consumption (60% of Payroll) (Taxed at 4.0%)	$544,824,000	$21,793,000
Indirect Sales	$3,174,124,800	
Hawaii (70%) - Taxed at 4.0%	$2,221,887,360	
Less Consumption	-$544,824,000	
Subtotal	$1,677,063,360	$67,082,500
Imports (30%) - Taxed at 0.5%	$952,237,440	$4,761,200
TOTAL GET REVENUE		**$185,658,200**
ANNUAL AVERAGE	**$0**	**$6,188,600**
Personal Income Tax		
Personal Income Tax Rate (a)	6.8%	
	Income	**Tax Revenue**
Construction Labor Income		
Direct Labor Income	$908,040,000	$61,746,700
Indirect Labor Income	$957,600,000	$65,116,800
Total Construction Labor Income	**$1,865,640,000**	$126,863,500
TOTAL PERSONAL INCOME TAX REVENUE		**$126,863,500**
ANNUAL AVERAGE		**$4,228,800**
Corporate Income Tax		
Corporate Income Tax Rate (b)	4.4%	
	Income	**Tax Revenue**
Profit from Construction (c)	$198,880,000	$8,750,700
TOTAL CORPORATE INCOME TAX REVENUE		**$8,750,700**
ANNUAL AVERAGE		**$291,700**
Conveyance Tax		
	Full-Time Residents	**Part-Time Residents**
Percent of Units	10%	90%
Homeowners Exemption	Yes	No
Conveyance Tax Rate per $100	$ 0.90	$ 1.10
Total Taxable Assessed Value	$ 441,000,000	$ 3,993,000,000
Conveyance Tax	**$3,969,000**	**$43,923,000**
TOTAL CONVEYANCE TAX REVENUE (FULL-TIME + PART-TIME)		**$47,892,000**
ANNUAL AVERAGE		**$1,596,400**

Notes:
(a) Personal income tax rate based on $75,000 annual income for head of household.
(b) Actual rate may be higher depending on corportate income.
(c) 5% of the total cost of construction is assumed for profits for construction companies.
Sources:
State of Hawai'i, Department of Taxation, 2021; State Department of Business, Economic Development and Tourism's 2017 State Input-Output Study for Hawai'i, 2022.
Prepared by: Munekiyo Hiraga, 2025.

i. General Excise Tax

The State collects GET based on two (2) rates, 4.0 percent for final sales and 0.5 percent for indirect sales, such as wholesale construction materials. The total GET revenue, including the direct construction costs and indirect sales, would be approximately $185.7 million in total. These revenues would be distributed over the 30-year development period and average approximately $6.2 million annually. Refer to **Table 8**.

ii. Personal Income Tax

The State would collect personal income taxes on the labor income resulting from the direct, indirect, and induced jobs generated by the proposed project. As discussed in the economic impact analysis, labor income would total approximately $62.2 million per year over the 30-year development period. Assuming a personal income tax rate of 6.8 percent, it is estimated that the State would realize approximately $126.9 million in total or $4.2 million per year in personal income tax revenue. Refer to **Table 8**.

iii. Corporate Income Tax

The State would also see the benefit of corporate income tax collected from the construction contractors based on their profits from the construction phase. The profits generated from the construction work would be taxed at the rate of 4.4 percent. Based on the conservative assumption that the construction companies involved will achieve a profit of five (5) percent of their gross income, the State would receive approximately $8.8 million in total or $0.3 million annually in corporate income taxes. Refer to **Table 8**.

iv. Conveyance Tax on Sale of Real Property

Conveyance tax is assessed by the State on the sale of real property. The tax rate is based on the sale amount and, for residential developments, whether the property is the buyer's primary residence. The conveyance tax rate for primary residents and part-time residents depends on the value of the unit. For the purpose of this analysis, full-time residents at the development are assumed to qualify for the homeowner exemption, which results in a lower conveyance tax rate, 0.90 percent, while part-time residents

are assumed to pay the higher conveyance tax rate, 1.10 percent.[6] Refer to **Table 8**.

Based on the foregoing assumptions and projected sale prices, the initial sale of the Mākena Mauka residential units would generate an estimated $47.9 million in total or $1.6 million per year in conveyance taxes for the State.

In summary, State general fund tax revenues that would be generated by the project's development activities would, therefore, total approximately $369.2 million or $12.3 million annually. This includes GET ($185.7 million), personal income tax ($126.9 million), corporate income tax ($8.8 million), and conveyance tax ($47.9 million). Refer to **Table 8**.

Although not included in the foregoing analysis of the State's general fund, it is noted that the State Department of Education (DOE) would collect one-time revenues (during development of residential units) for school impact fees. The project developer will coordinate with DOE to determine applicable DOE school impact fee requirements for the project. These fees would be paid directly to the DOE for the development or expansion of public school facilities within the Central Maui School District. While the proposed project will pay appropriate school impact fees, as applicable, it is noted that the project is not anticipated to significantly affect local schools as a resort residential community with a large proportion of part-time residents.

b. Expenditures

The State is not expected to bear any expenditures associated with the construction of the proposed Mākena Mauka project.

c. Net Impacts

The one-time construction tax revenues from the project for the State would be approximately $369.2 million in total or $12.3 million annually, which would be generated by a combination of GET, personal income tax, corporate income tax, and conveyance tax revenue streams. The State is not expected to incur any expenses related to construction. As such, the

[6] Conveyance tax rates vary based on the valuation of the real property sold as well as whether or not the purchaser is eligible for a county's homeowners exemption on property tax. The conveyance tax rates used for this analysis were based on the anticipated sale price of the units as well as anticipated status of purchasers' homeowners exemption.

net fiscal impact of the development activities is also approximately $369.2 million in total or $12.3 million annually. See **Table 9**.

Table 9. Net State Fiscal Impacts, Construction Period

Expenditures	**$0**
Revenues	
GET	$185,658,200
Personal Income Tax	$126,863,500
Coporate Income Tax	$8,750,700
Conveyance Tax	$47,892,000
Total Revenues	**$369,164,400**
Annual Average	**$12,305,500**
Net Fiscal Impact	**$369,164,400**
Net Fiscal Impact per year	**$12,305,500**
Prepared by: Munekiyo Hiraga, 2025.	

2. County of Maui

a. Revenues

The County of Maui would also realize one-time construction-related revenues from the proposed development, primarily in the form of GET surcharge. As of January 1, 2024, the County of Maui started implementation of 0.5 percent surcharge on GET which goes to the County General Fund. The GET surcharge revenue from the construction activities is estimated to be approximately $31.0 million in total or $1.0 million annually. See **Table 10**. In addition, although it is not quantified as part of this analysis, building permit fees flow to the County's general fund while other impact fees represent revenues for specific County funds.

Table 10. Maui County GET Surcharge

General Excise Tax (GET)		
County General Excise Tax Rate (a)	0.50%	
	Expenditures and Sales	**Tax Revenue**
Construction Expenditures	$3,977,600,000	$19,888,000
Consumption (60% of payroll)	$544,824,000	$2,724,100
Indirect Sales	$3,174,124,800	
Hawaii (70%) (b)	$2,221,887,400	
Less consumption	-$544,824,000	
Subtotal	$1,677,063,400	$8,385,300
TOTAL GET SURCHARGE REVENUE		**$30,997,400**
ANNUAL AVERAGE		**$1,033,200**

Note:
(a) GET surcharge only applies to final sales taxed at 4.0 percent.
(b) Hawai'i indirect sales is assumed to be final sales that is taxed at 4.0 percent.
Sources:
State of Hawai'i, Department of Taxation, 2021;
State Department of Business, Economic Development and Tourism's 2017 State Input-Output Study for Hawai'i, 2022.
Prepared by: Munekiyo Hiraga, 2025.

AREG AC Makena Propco LLC (dba Mākena Golf & Beach Club Owners), the project developer, will also be required to dedicate land for park development or pay the Park Assessment Fee pursuant to Section 18.16.320, Maui County Code (MCC). The developer is exploring various options for complying with its applicable park dedication requirement. If the developer chooses to pay the park assessment fee, these fees would be paid directly to the County for the purposes of providing park-related improvements.

It is also noted that the proposed project will comply with the County's workforce housing provisions as set out in the Residential Workforce Housing Policy Ordinance codified in MCC, Section 2.96. The Ordinance allows affordable housing requirements to be satisfied through the provision of onsite or offsite affordable housing units or through the payment of an in-lieu fee. Although compliance with the residential workforce housing policy does not represent a direct fiscal benefit to the County's general fund, it nevertheless benefits the County and qualifying residents. The project will provide workforce housing in perpetuity. According to Section 2.96.040, MCC, if workforce housing units remain available only to income-qualified groups in perpetuity, developers are required to provide at least 20 percent of the total number of market units. As such, the proposed 109 onsite workforce housing units (20 percent of

the total market units) will satisfy the residential workforce housing requirements. As noted previously, preliminarily, approximately one third of the proposed workforce housing units will be available for households earning 80 percent of the AMI or less, another one third of the units will be available for households earning between 81 to 100 percent of the AMI, and the remaining one third of the units will be available for households earning between 101 to 120 percent of the AMI.

Lastly, AREG AC Makena Propco LLC (dba Mākena Golf & Beach Club Owners), the project developer, has made or will make a variety of contributions to the County infrastructure pursuant to conditions attached to the Change of Zoning approval for the project area, approved by the County Council via Ordinance No. 3613. Notable contributions include construction of public beach parking, Pi'ilani Highway widening, bikeways, trails, and walking paths, private sewer system for the area, $5,000.00/unit contribution to traffic impact (if traffic impact fees are not implemented), land for a civil defense siren, nearshore water quality monitoring for the area, donation of beach park lands, maintenance of two (2) public beach parks and three (3) public restroom facilities (including the water usage and sewer fees for these public restrooms), $1,000.00/unit contribution for a new police station, and public evacuation route to the wastewater treatment plant. In addition, the developer provides for the landscaping, irrigation, water, and landscape maintenance for over 1.5 miles of roadways, including along Mākena Alanui, Honoiki Street, and Mākena-Keone'ō'io Road.

b. Expenditures

Similar to the State, the County of Maui is not expected to bear any expenditures associated with the construction of the proposed project. The developer will be responsible for the cost of developing and constructing internal roadways and all other infrastructure improvements necessary for the project.

c. Net Impacts

As previously discussed, County expenditures associated with project development are not expected. Therefore, the short-term fiscal impact to the County of Maui resulting from the construction of the proposed project would be positive.

The development of the proposed project would generate approximately $31.0 million in total or $1.0 million annually of GET surcharge at the rate of 0.5 percent. In addition, while not quantified, one-time building permit

fees will also generated for the County general fund. In addition to general fund revenues, the project would provide park land dedication or alternatively in park assessment fees. The net fiscal impact for the County associated with the development period would be approximately $31.0 million in total or $1.0 million annually. See **Table 11**.

Table 11. Net County Fiscal Impacts, Construction Period

Expenditures	**$0**
Revenues	
GET Surcharge	$30,997,400
Total Revenues	**$30,997,400**
Net Fiscal Impact	**$30,997,400**
Net Fiscal Impact, Annual Average	**$1,033,200**
Prepared by: Munekiyo Hiraga, 2025.	

B. FISCAL IMPACTS AT FULL BUILD-OUT

Fiscal impacts at full build-out is provided below. It is noted that during the 30-year construction period, completed residential units will be sold/occupied as they become available. As such, operational fiscal impacts at any given time during the construction period would be roughly proportional to the level of completion.

1. State of Hawai‘i

a. Revenue

The State of Hawai‘i would receive revenues from several sources as a result of the proposed project at full build-out. These include GET on club revenues, personal income taxes of new employees, and corporate income taxes from the club revenues and rent revenues from the workforce housing units. Beyond these taxes, the State would also receive conveyance taxes from units that are resold over time.

Table 12 below estimates the amount of GET, recurring conveyance tax revenue, personal income tax from employees, and corporate income tax generated by the proposed project.

Table 12. State Tax Revenues

GENERAL EXCISE TAX REVENUE	
General Excise Tax Rate	
Final Sales	4%
New On-property Revenues, Annual Average (a)	$59,270,000
New General Excise Tax Revenue	**$2,370,800**
RECURRING CONVEYANCE TAX REVENUE	
Percentage of Units Re-sold Each Year (b)	20%
Total Conveyance Tax Revenue at Initial Sale (c)	$47,892,000
Annual Recurring Conveyance Tax Revenue (d)	**$9,578,400**
PERSONAL INCOME TAX	
Personal Income Tax Rate (e)	6.8%
Net New Employees	112
Net New Annual Earnings (a)	$5,577,600
New Annual Personal Income Tax Revenue	**$379,300**
CORPORATE INCOME TAX	
Corporate Income Tax Rate (f)	4.4%
Profits	10.0%
Net income from Club Revenues (g)	$56,250,000
Net income from Workforce Housing Rent (g)	$3,020,000
New Annual Corporate Income Tax Revenue	**$260,800**
TOTAL	**$12,589,300**

Notes:

(a) Refer to **Table 7**.

(b) Assumes units are re-sold every 5 years based on developer's past experience with similar product type.

(c) Refer to **Table 8** for calculation of conveyance tax at initial sale.

(d) Based on estimated home values at time of initial sale. Actual conveyance tax revenue would be higher depending on year sold and home price appreciation over time.

(e) Personal income tax rate based on $75,000 annual income for head of household.

(f) Actual rate may be higher depending on corportate income.

(g) Net income is estimated to be 10% of gross income.

Prepared by: Munekiyo Hiraga, 2025.

i. General Excise Tax

The change in GET revenues for the State would be based on the change in new club and amenities revenues, as well as rent revenues from the workforce housing units. The total change in the GET revenue to the State is estimated at approximately $2.4 million per year. Refer to **Table 12**.

ii. Recurring Conveyance Tax on the Sale of Real Property

The State will also collect conveyance tax revenue from the project as units are re-sold over time. This analysis assumes that 20 percent market-rate residential units are re-sold each year based on the developer's experience that units are resold, on average, every five (5) years. The actual conveyance tax revenue realized annually would vary by year and housing market trends as home values fluctuate over time. To provide a simple proxy for annual recurring conveyance tax revenue, this analysis assumes that the revenue represents 20 percent of the total project conveyance tax revenue at initial sale. As presented in **Table 8**, the initial sale of all units at the project is expected to generate approximately $47.9 million in conveyance taxes. Assuming that 20 percent of units are re-sold each year, the recurring conveyance tax revenue for the State is estimated at approximately $9.6 million annually. Refer to **Table 12**. It should be noted that actual conveyance tax revenue would likely be higher depending on the year sold and the long-term appreciation in the price of the units over time.

iii. Personal Income Tax

The proposed project is anticipated to employ approximately 112 additional employees over the existing employment at the Makena North and South Golf Courses. Based on a personal income tax rate of 6.8 percent, these new earners would generate approximately $0.38 million in annual personal income tax revenue for the State. As previously mentioned, the majority of market rate residents are expected to be part-time residents. These part-time residents will likely not earn taxable income in the State. While not quantified in this analysis, full-time project residents (including market and workforce housing units) are anticipated to generate some level of new personal income tax revenue for the State.

iv. Corporate Income Tax

The project will also generate State revenue from corporate income taxes levied on the profits of Mākena Golf & Beach Club Owners from residential workforce housing rent and income from club amenities. Assuming a corporate income tax rate of 4.4 percent, the project is anticipated to generate annual revenues of approximately $0.26 million to the State. It is noted that profit is estimated as 10 percent of gross income. Similar to the personal income tax, full-time project residents (including market and workforce housing units) are anticipated to contribute to some level of new corporate income tax as new workforce within the State.

Together, the project would generate approximately $12.6 million per year in revenue annually for the State general fund. It is noted that this is a conservative estimate as it does not factor in home value appreciation for conveyance tax revenue estimation purposes nor does it include personal income taxes within Hawai‘i that may be generated by project residents.

b. Expenditures

As explained earlier in Chapter I, the analysis of government expenditures is conducted on a cost per capita basis, where the de facto population, or the number of people physically present, including residents and visitors, is used in calculations. **Table 13** presents the proposed de facto population at the project site. An estimated 741 residents are estimated to be on the project site per day, based on the assumption regarding full-time and part-time residential occupancy patterns. It is assumed that residents of the workforce housing units would be 100 percent full-time residents on Maui while 90 percent of the market rate units will be part-time residents. Based on the foregoing, the net change in de facto population is anticipated to be approximately 741 more persons.

Table 13. Mākena Mauka De Facto Population

Residents	Proposed Unit
Residents per Unit (a)	2.84
Market Units	
Full-Time Residential Units	54
Full-Time Residents per day	153
Part-Time Residential Units	489
Percent of Time on Maui	20%
Part-Time Residents per day	278
Subtotal (Market Units Residents per day)	431
Workforce Housing Units (All Full-Time)	
Full-time Residential Units	109
Full-Time Residents per day	310
Total Residents per day	**741**
TOTAL	
Total De Facto Population	**741**

Note: (a) Average household size in Makena CDP from 2020 Census.
Source: Mākena Golf & Beach Club Owners, 2025; U.S. Census Bureau, 2020
Prepared by: Munekiyo Hiraga, 2025.

The State of Hawai'i can, therefore, expect an increase in expenditures specifically associated with the project due to the higher de facto population.

Table 14 provides a breakdown of the State's $9.7 billion general fund budget for fiscal year 2025 by department. General fund expenditures are allocated on a per de facto population basis for departments that would be impacted by the project.

Table 14. State of Hawai'i General Fund Expenditures

ASSUMPTIONS				
State of Hawaii De Facto Population, 2022 (a)	1,598,157			
Proposed Project Population	741			
GENERAL FUND EXPENDITURE IMPACTS				
	FY 2025 Budget	**Impacted by Project**	**Existing Cost per Person**	**Proposed Project Cost**
Accounting and General Services	$137,647,726	No	$0	$0
Agriculture	$19,060,054	No	$0	$0
Attorney General	$45,235,165	No	$0	$0
Business, Economic Development & Tourism	$79,447,049	No	$0	$0
Budget and Finance	$3,750,563,752	No	$0	$0
Commerce and Consumer Affairs	$0	No	$0	$0
Defense	$32,871,324	Yes	$21	$15,234
Education	$2,113,352,523	No	$0	$0
Charter Schools	$135,880,413	No	$0	$0
Public Libraries	$45,320,893	No	$0	$0
Governor	$6,319,274	No	$0	$0
Hawaiian Home Lands	$26,796,100	No	$0	$0
Health	$543,447,449	Yes	$340	$251,863
Health - Hawaii Health Systems Corporation	$145,027,003	Yes	$91	$67,213
Human Resources Development	$25,919,882	No	$0	$0
Human Services	$1,382,205,488	No	$0	$0
Labor and Industrial Relations	$24,162,737	No	$0	$0
Land and Natural Resources	$93,748,636	Yes	$59	$43,448
Law Enforcement	$40,468,961	Yes	$25	$18,755
Lieutenant Governor	$1,824,848	No	$0	$0
Public Safety	$296,840,434	Yes	$186	$137,572
Taxation	$37,692,076	Yes	$24	$17,469
Transportation	$0	Yes	$0	$0
University of Hawaii	$673,082,129	No	$0	$0
TOTAL	**$9,656,913,916**		**$745**	**$551,600**

Notes:
(a) Due to the Maui wildfires in August 2023, De Facto Population has decreased since then. As such, the 2022 De Facto population was utilized as status quo and historical annual average increase was not applied to the 2022 De Facto Population because the population parameters have been impacted by the August 2023 wildfires.
Source: Hawai'i Data Book 2023; State of Hawai'i Department of Budget and Finance, 2022.
Prepared by: Munekiyo Hiraga, 2025.

As indicated in **Table 14** above, this analysis assumes that the State administrative functions would not be impacted by the project. Administrative functions include departments such as Accounting and General Services, the Attorney General, Budget and Finance, the Governor and Lieutenant Governor, and Taxation. Due to the primarily resort-oriented nature of the proposed project, the property is also assumed to

not directly impact State education expenditures, including charter schools and the University of Hawai‘i.

Based on the foregoing assumptions, the total cost per person (de facto population) of State functions that would be impacted by the proposed project is approximately $745.00. Based on these assumptions and the projected increase in de facto population at the project site, the total change in annual operating costs for the State would be an increase of approximately $0.55 million per year. Refer to **Table 14**.

c. <u>Net Impacts</u>

Increased State revenues associated with the proposed project are estimated to be approximately $12.6 million on an annual basis. This includes GET revenue ($2.4 million), recurring conveyance tax revenue ($9.6 million), personal income tax ($0.38 million), and corporate income tax ($0.26 million). This, however, is considered to be a conservative estimate as it does not include personal income tax that may be paid by project residents and is based on conveyance tax revenues that do not factor in home price appreciation. Annual general fund expenditures required to serve the project are estimated to increase by approximately $0.55 million per year, due to the increase in the de facto population at the project site.

Based on the foregoing, the project would generate a net fiscal surplus for the State of approximately $12.0 million each year. See **Table 15** below.

Table 15. State Fiscal Impact

Annual Revenues		
General Excise Tax	$2,370,800	See Table 12.
Recurring Conveyance Tax	$9,578,400	See Table 12.
Personal Income Tax	$379,300	See Table 12.
Corportate Income Tax	$260,800	See Table 12.
Total	**$12,589,300**	
Annual Expenditures		
Net Change in Expenditures	**$551,600**	See Table 14.
Net Fiscal Impact		
Net Fiscal Impact	**$12,037,700**	per year
Prepared by: Munekiyo Hiraga, 2025.		

1. County of Maui

a. Revenues

i. Property Tax

The County of Maui will realize increased property tax revenues from the proposed project.

ii. Residential Property Tax

Real property tax rates in the County are based on a classification system of a property's highest and best use. For condominium developments, each unit within the development is classified based upon its actual use. The proposed units within the Mākena Mauka project may fall within one (1) of two (2) classes, depending on the occupancy of the unit. The two (2) classifications, as outlined in Section 3.48.305 of the MCC, are described below:

- **Owner-occupied (homes of full-time residents)** – units owned and occupied as a principal home and for which a homeowner exemption claim was filed and granted.
- **Non-owner-occupied (homes of part-time residents)** – units that do not have rental, commercial, or industrial use, and are not a primary residence.

As previously mentioned, the proposed project's market units are anticipated to serve both full-time residents and part-time residents. Full-time residents are expected to occupy approximately 10 percent of the total market units, while part-time residents are anticipated to occupy the remaining 90 percent of the market units. This analysis conservatively assumes that full-time residents at the project will consider their unit to be their principal home and will claim a homeowner exemption. Part-time residents are assumed to occupy their Makena unit for less than six (6) consecutive months per year and their units are, therefore, categorized as "non-owner-occupied". It is assumed that rental workforce housing units will be exempt from the property tax pursuant to Section 3.48.496 of MCC.

Table 16 presents the real property tax rates and the anticipated annual property tax revenue generated by the residential component of the proposed project. The proposed residential units are anticipated to generate approximately $47.7 million in total annual property tax revenues for the County of Maui.

As shown in **Table 16**, the majority of the project's residential property tax revenue is estimated to come from the market rate units that will be used by part-time residents and classified as "non-owner-occupied" for the property tax purposes. The "non-owner-occupied" property tax rate is among the highest property tax rates in the County and represents nearly a quarter of the County's total property tax revenue (County of Maui, Real Property Assessment Division, 2025). The proposed project will represent a considerable increase in property tax revenue for non-owner occupied units/homes Countywide.

It is noted that 100 percent of the property tax revenue will be allocated to the County general fund. As further shown in a later section and on Table 19 (County General Fund Expenditure), the net increase of the property tax revenues from the proposed project will be used for a variety of purposes, including Fire and Public Safety, Housing, Parks and Recreation, Public Works, and Transportation.

Table 16. Residential Property Tax

ASSUMPTIONS	
Market Units	
Percentage of full-time residents	10%
Percentage of part-time residents	90%
Workforce Housing	
Percentage of full-time residents	100%

ANNUAL PROPERTY TAX REVENUE AT FULL BUILD-OUT

Unit Type	Tax Rate (a)		Number of Units	Assessed Value			Total Property Tax Revenue/year
	Classification	Max Rate per $1,000		Average Assessed Value per Unit (b)	Less Homeowner Exemption	Net Taxable Assessed Value	
Market Full-time Residences	Owner-occupied	$3.25	54	$8-$8.5M	$200,000	$ 430,200,000	$ 1,184,850
Market Part-time Residences	Non-owner-occupied	$14.00	489	$8-$8.5M	$ -	$ 3,993,000,000	$ 46,547,430
Workforce Housing (Rental)	Exempt per §3.48.496 MCC	-	109	-	$ -	$ -	$ -
TOTAL			**652**			**$ 4,423,200,000**	**$ 47,732,300**

Notes:
(a) As published in the County of Maui Fiscal Year 2025 Budget Ordinances. Tier depends on Assessed Value.
(b) Assessed value based on projected sales price by unit type for market rate sale unit. Per Chapter 3.48.450, Maui County Code, real property owned and occupied only as a principal home qualifies for an exemption of $200,000.
Sources: County of Maui Budget Office, 2023; Mākena Golf & Beach Club Owners, 2025.
Prepared by: Munekiyo Hiraga, 2025.

i. Non-Residential Property Tax

The non-residential property tax revenues are calculated based on the total building value and land values for the golf courses, common/open spaces, commercial area, and open space. The construction cost for the amenities and commercial spaces are used as a proxy for building value. The land values for non-residential area is conservatively estimated to remain the same

after the development of the project. As shown in **Table 17** below, the non-residential components would generate approximately $1.5 million in annual property tax revenue for the County. Together with the residential property taxes, the proposed project is expected to generate approximately $49.2 million in property taxes annually. The existing property taxes paid for the site for 2024 was $469,500.00. As such, the net increase in property tax revenue resulting from build-out of the project would be approximately $48.7 million on an annual basis. Refer to **Table 17** below.

Table 17. Net Property Tax

PROPERTY TAX REVENUE AT FULL BUILD-OUT			
Residential Assessed Value	Refer to **Table 17.**		
Non-Residential Assessed Value	**Commercial**	**Golf Courses**	**Other Areas**
Building (a)	$162,000,000	$36,000,000	$0
Land Value (b)	$22,100	$21,122,300	$17,559,900
Total Non-Residential Assessed Value	$162,022,100	$57,122,300	$17,559,900
Property Tax Revenue	**Tax Revenue**		
Residential (c)	$47,732,300		
Commercial (d)	$980,234		
Golf Courses (e)	$367,296		
Other Areas (f)	$100,794		
Total Annual Property Tax Revenue	$49,180,600		
EXISTING PROPERTY TAX REVENUE			
Existing Property Tax Revenue (2024) (g)	$469,500		
NET NEW PROPERTY TAX REVENUE			
Net New Property Tax Revenue	**$48,711,100**		

Notes:

(a) Construction value used as proxy for building value. Refer to **Table 2**.

(b) Non-residential land values are assumed to remain the same after project completion.

(c) Refer to **Table 16**.

(d) Commercial tax rate: $6.05 per $1000 of assessed value.

(e) Per tax records, golf courses taxed according to conservation rate: $6.43 per $1000 of assessed value.

(f) Other areas mainly consists of open spaces, and therefore agricultural rate of $5.74 per $1,000 of assessed value w as utilized.

(g) Existing (2024) assessed values per real property tax records.

Source: County of Maui Budget Office, 2024; County of Maui, Real Property Tax Records, 2024.

Prepared by: Munekiyo Hiraga, 2025.

ii. General Excise Tax Surcharge

As noted previously, as of January 1, 2024, the County of Maui initiated to impose a GET surcharge at the rate of 0.5 percent for final sales. The GET surcharge is not imposed on indirect sales. The total GET surcharge revenue associated with net increase in

spending within Maui County by the project's residents as well as the new club amenities and workforce housing rent revenues, the GET surcharge revenues to the County is estimated at approximately $0.3 million. Beyond property tax revenues and GET surcharge, the County would collect a nominal amount in other taxes and fees from new residents to Maui. This may include various license and permit fees and other charges paid by project households. These revenues, however, would be minimal compared to real property tax and GET surcharge revenues generated by the project and, as such, have not been included in this analysis. See **Table 18**.

Table 18. Maui County GET Surcharge

GENERAL EXCISE TAX REVENUE	
General Excise Tax Rate	0.5%
New On-property Revenues, Annual Average (a)	$59,270,000
New General Excise Tax Revenue	**$296,400**
Notes: (a) Refer to **Table 7**. Prepared by: Munekiyo Hiraga, 2025.	

b. Expenditures

Similar to the State, the County of Maui can expect higher operating expenditures associated with the project due to the increase (from existing conditions) in de facto population at the property. As previously mentioned, due to the new homes that would be build on the project site, the de facto population at the project site is expected to be approximately 741 people.

Table 19 below summarizes the impacts to the County's general fund associated with the proposed project. As shown, the County's fiscal year 2025 budget includes an estimated $781.3 million of general fund expenditures for various County activities and services. The cost of County functions is allocated on a per person (de facto population) basis based on the 2022 de facto population for Maui County. It should be noted, however, that (similar to the State) not all County functions will be impacted by the proposed project. For example, legislative costs (i.e., the County Council) and capital expenditures are not expected to change as a result of the project. General Government expenditures, which cover administrative functions such as the Mayor's Office, Management, Personnel, and Finance, among other departments, are also not anticipated to change as a result of the proposed project.

Table 19. County General Fund Expenditure

ASSUMPTIONS				
Maui County De Facto Population, 2022 (a)	212,378			
Proposed Project Population	741			
GENERAL FUND EXPENDITURE IMPACTS				
	FY 2025 Budget	**Impacted by Project**	**Existing Cost per Person**	**Proposed Project Cost**
Agriculture	$ 8,231,016	No	$0	$0
Corporation Counsel	$ 5,380,568	No	$0	$0
County Clerk	$ 2,784,276	No	$0	$0
County Council	$ 11,483,333	No	$0	$0
East Maui Water Authority	$ 590,160	No	$0	$0
Emergency Management Agency	$ 17,054,328	Yes	$80	$59,477
Environmental Management	$ 1,467,656	Yes	$7	$5,118
Finance	$ 14,787,596	No	$0	$0
Countywide (b)	$ 366,394,736	No	$0	$0
Fire and Public Safety	$ 62,599,974	Yes	$295	$218,319
Housing	$ 8,501,163	No	$0	$0
Human Concerns	$ 27,014,794	No	$0	$0
Management	$ 62,395,502	No	$0	$0
Ō'iwi Resources	$ 1,428,359	No	$0	$0
Office of the Mayor	$ 20,971,309	No	$0	$0
Parks and Recreation	$ 42,033,855	Yes	$198	$146,594
Personnel Services	$ 2,410,981	No	$0	$0
Planning	$ 8,486,464	No	$0	$0
Police	$ 79,184,618	Yes	$373	$276,158
Prosecuting Attorney	$ 9,652,926	No	$0	$0
Public Works	$ 16,919,072	Yes	$80	$59,006
Transportation	$ 11,505,136	Yes	$54	$40,124
TOTAL	**$781,277,822**		**$999**	**$740,200**

Notes:
(a) Due to the Maui wildfires in August 2023, De Facto Population has decreased since then. As such, the 2022 De Facto population was utilized as status quo and historical annual average increase was not applied to the 2022 De Facto Population because the population parameters have been impacted by the August 2023 wildfires.
(b) The budget for Countywide includes insurance, debt service payments, interdepartmental transfers and unreimbursed employee benefits.
Sources: State Databook 2023; County of Maui Budget Office, 2024.
Prepared by: Munekiyo Hiraga, 2025.

As shown in **Table 20**, the total general fund cost per de facto population (of County functions that would be impacted by the proposed project) is approximately $1,000. Based on these assumptions, the total change in annual operating costs for the County's general fund would be an increase of approximately $0.74 million.

b. Net Impacts

County revenues associated with the proposed project are estimated to be approximately $49.0 million annually in property tax and GET surcharge revenues. General fund expenditures required to serve the project are estimated to increase by $0.74 million. As such, the proposed project is expected to generate a positive net benefit of approximately $48.3 million annually for the County of Maui. See **Table 20**.

Table 20. Net Fiscal Impact, County of Maui

REVENUES		
Net New Property Tax Revenues	$48,711,100	Refer to **Table 17**.
New GET Surcharge Revenue	$296,400	Refer to **Table 18**.
Total Revenues	**$49,007,500**	
EXPENDITURES		
Net Increase (Decrease) in Expenditures	**$740,200**	Refer to **Table 19**.
NET FISCAL IMPACT		
Net Fiscal Impact per year	**$48,267,300**	per year
Prepared by: Munekiyo Hiraga, 2025.		

CONCLUSION IV

IV. CONCLUSION

The development of the proposed project would generate positive economic and fiscal impacts to the State of Hawai'i and County of Maui during both the construction period and at full build-out during ongoing operations. See **Table 21**.

CONSTRUCTION PERIOD

From a development standpoint, the project is anticipated to cost $4.0 billion to construct over the 30-year development period. This would result in approximately 330 direct full-time equivalent (FTE)[7] jobs per year for the 30-year development period, with associated total earnings of approximately $30.3 million per year. **The total impacts of construction, including direct, indirect, and induced impacts, would be 840 jobs in annual person years with associated earnings of approximately $62.2 million.** In addition, initial sales of the market rate housing units will generate general excise tax (GET), personal income tax, corporate income tax, and conveyance tax revenues. The State and County would benefit from additional tax revenue but would not bear any additional costs as a result of project construction. As such, **the State and County would experience a positive fiscal impact over the construction period in the amount of $12.3 million for the State and $1.0 million for the County, annually.**

FULL BUILD-OUT (OPERATIONS)

The proposed project is anticipated to include both full-time and part-time residents. While all of the workforce housing units are assumed to be full-time residents, 90 percent of the market-rate units are anticipated to be occupied by part-time residents (assumed to be present on the island approximately 20 percent of the time). **Upon completion, the proposed project is anticipated to generate total net new sales revenue of $59.3 million per year.** This is comprised of net new revenues from club operations at the Mākena Mauka property, as well as net new rent revenues from the workforce housing units. **The operations of Mākena Mauka will result in approximately 112 additional FTE jobs with associated earnings of approximately $5.6 million per year** through club operation and additional golf course operation over the existing golf course operation. In addition, new residents of Mākena Mauka will also spend money offsite (outside of the property) within the local economy, which will create positive economic impacts on Maui. For example, if all households of the market units spend $250.00[8] a day while on Maui, the

[7] Full-time equivalent (FTE) is a unit to measure employed persons who work different hours per week comparable. FTE is typically based on a 40-hour work week. For example, a full-time employee counts as 1.0 FTE, while a part-time employee who works 20 hours a week counts as 0.5 FTE.

[8] Estimate of daily household spending provided by AREG AC Makena Propco LLC (dba Mākena Golf & Beach Club Owners).

total offsite economic impacts on Maui would be over $38,000.00 a day[9] (or approximately $14 million annually).

From a fiscal perspective, the de facto population at the project site will increase, resulting in an increase in the cost of government services for the property for both the State and County. Meanwhile, **both the State and County will realize new tax revenues from the proposed project, resulting in a net positive fiscal impact of approximately $12.0 million for the State and $48.3 million for the County on an annual basis.**

Table 21. Summary of Economic and Fiscal Impact Analysis

	Construction		Operation
	Total	**Annual**	**Annual**
Economic Impacts			
Direct Impacts			
Output (Sales)	$ 3,977,600,000	$132,586,700	$59,270,000
Employment	9,870	330	112
Earnings	$ 908,040,000	$30,268,000	$5,577,600
Indirect Impacts			
Output (Sales)	$ 3,174,124,800	$105,804,200	n.e.
Employment	15,200	510	n.e.
Earnings	$ 957,600,000	$31,920,000	n.e.
Fiscal Impacts			
State of Hawaii	$ 369,164,400	$12,305,500	$12,037,700
County of Maui	$ 30,997,400	$1,033,200	$48,267,300
Prepared by: Munekiyo Hiraga, 2025.			

[9] The market units actively used in any given day is approximately 152 units (full-time market units [54 units] + 20 percent of part-time market units [489 units x 20 percent = 97.8 units] = 151.8 units). If each market unit household spends $250.00 /day, it would result in $38,000.00 total spending per day.

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V. REFERENCES

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Appendices W to AC

Draft Environmental Impact Statement

MĀKENA MAUKA

(TMK Nos. (2)2-1-005:108, (2)2-1-006:036 and 057, (2)2-1-007:068, 092 and 093, (2)2-1-008:078, 079, 081, and 090, and (2)2-1-031:036(por.))

Prepared for:
AREG AC Makena Propco LLC

Accepting Authority:

Maui Planning Commission

December 2025

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TRAFFIC IMPACT ANALYSIS REPORT

Mākena Mauka

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Traffic Impact Analysis Report

Kihei and Makena, Maui, Hawaii

June 2025

Prepared for

AREG AC Mākena Propco LLC

Prepared by

SSFM International

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I. PROJECT DESCRIPTION

Mākena Mauka ("the project") is a low-density master-planned residential community that will offer market rate housing together with residential workforce housing, with a mixture of rural and single-family lots and multi-family residential units, within an area that has largely been planned for such uses for decades. The project will incorporate the existing 18-hole Mākena North Golf Course and the 18-hole Mākena South Golf Course (to be renovated as part of the land plan), together with a community gathering place, hiking trails, programs to support connectivity, walking, bicycling, and golf cart paths, beach parking for the public, areas reserved for conservation/open space, and areas reserved for public beach access. The Applicant's current vision for the Mākena Mauka land plan includes 652 housing units, including 109 onsite residential workforce housing units, 180 single-family market-value units, 363 multi-family market-value units, and approximately 135,000 square feet (SF cba) of operational support buildings, which include golf maintenance, staff offices, restaurants, back of house, golf operations and other uses; within the approximately 1,043-acre total project area which includes approximately 473 acres of parcels proposed for residential development. The workforce housing is expected to be completed within the first 10 years of construction, with the remaining single-family market-value homes and multi-family market-value homes being constructed equally over three 10-year periods (10, 20, and 30 years into the future). The project will incorporate the existing 18-hole Mākena North Golf Course and the existing (to-be-renovated) 18-hole Mākena South Golf Course, with improvements to the golf facilities. The project will include a community gathering place, hiking trails, programs to support connectivity, walking, bicycling, golf cart paths, beach parking areas for the public, areas reserved for conservation/open space, and areas reserved for public beach access. Access to the project area will be provided from Makena Alanui Drive, with an internal roadway network connecting to the individual communities within the project. Improvements to existing roadways and intersections within the project area are anticipated, were identified for mitigation, as part of the proposed project. Future internal bicycle and pedestrian facilities are still being designed with the goal to connect to the existing bike lanes and sidewalk on the makai side of Makena Alanui Drive.

Mākena Mauka currently is participating in the creation of an inclusive community evacuation plan, which has been spurred by an escalating number of wildfires, particularly the deadly and devastating 2023 Lahaina and Kula fires, and the continuously eroding South Kīhei Road, which flooded again in early 2025. For emergencies that require immediate evacuation by and for the surrounding and visiting community members, Mākena Mauka is planning an emergency access route that provides access mauka from Makena Alanui Drive. This alternate access could also serve area residents, workers and visitors in emergency situations when the diversion of traffic would assist emergency responders, for example.

To further help ensure that mass-impact emergencies are communicated in a timely fashion, the applicant has complied with their Conditions in Zoning by assisting in the provision of two emergency sirens (Maui Ordinance 3613, 2009, Condition 16). In 2017, the applicant enabled the Hawai‘i Department of Defense's installation of one of the additional sirens at the applicant's wastewater treatment plant. The second siren was installed at Makena State Park.

A Traffic Impact Analysis Report (TIAR) was prepared in support of the proposed project's environmental permitting. The project is expected to begin construction in 2028 and be completed by 2058. This TIAR will evaluate existing conditions and assess impacts to roadways and study intersections

(see Figure 2) in the surrounding areas as a result of the proposed development for scenarios 10, 20, and 30-years into the future after phased construction. Future years (2038, 2048, and 2058) will be evaluated with and without the project to assess traffic congestion and potential impacts.

In a June 3, 2022 memo to the State of Hawai‘i Department of Transportation (HDOT), it was noted that the project's owner and HDOT were in agreement that the project's pro rata share to satisfy the land use conditions will be based upon a TIAR prepared by the project and reviewed by HDOT. The memo was signed by the project owner on June 3, 2022 and by HDOT on June 7, 2022.

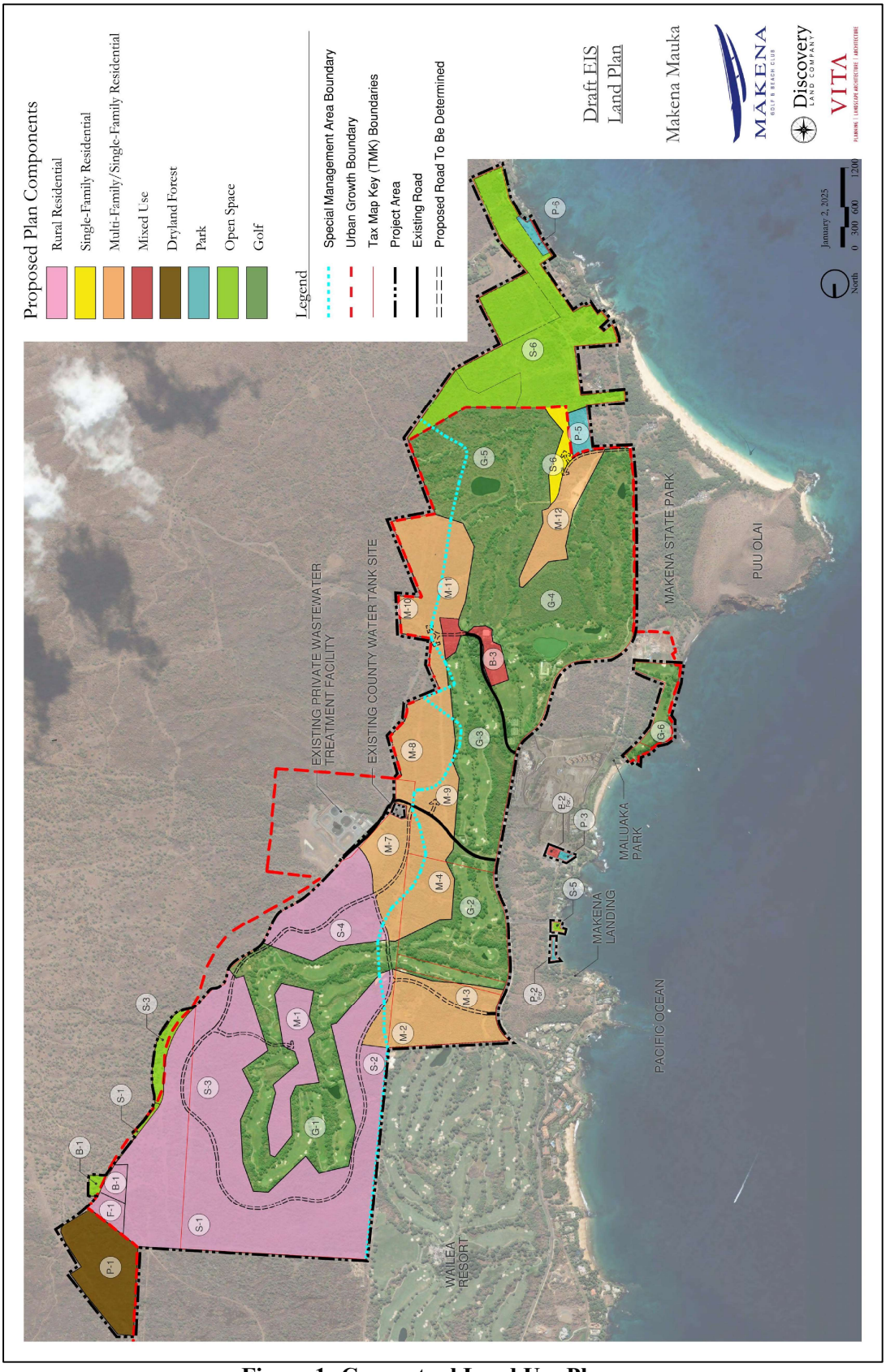

Figure 1: Conceptual Land Use Plan

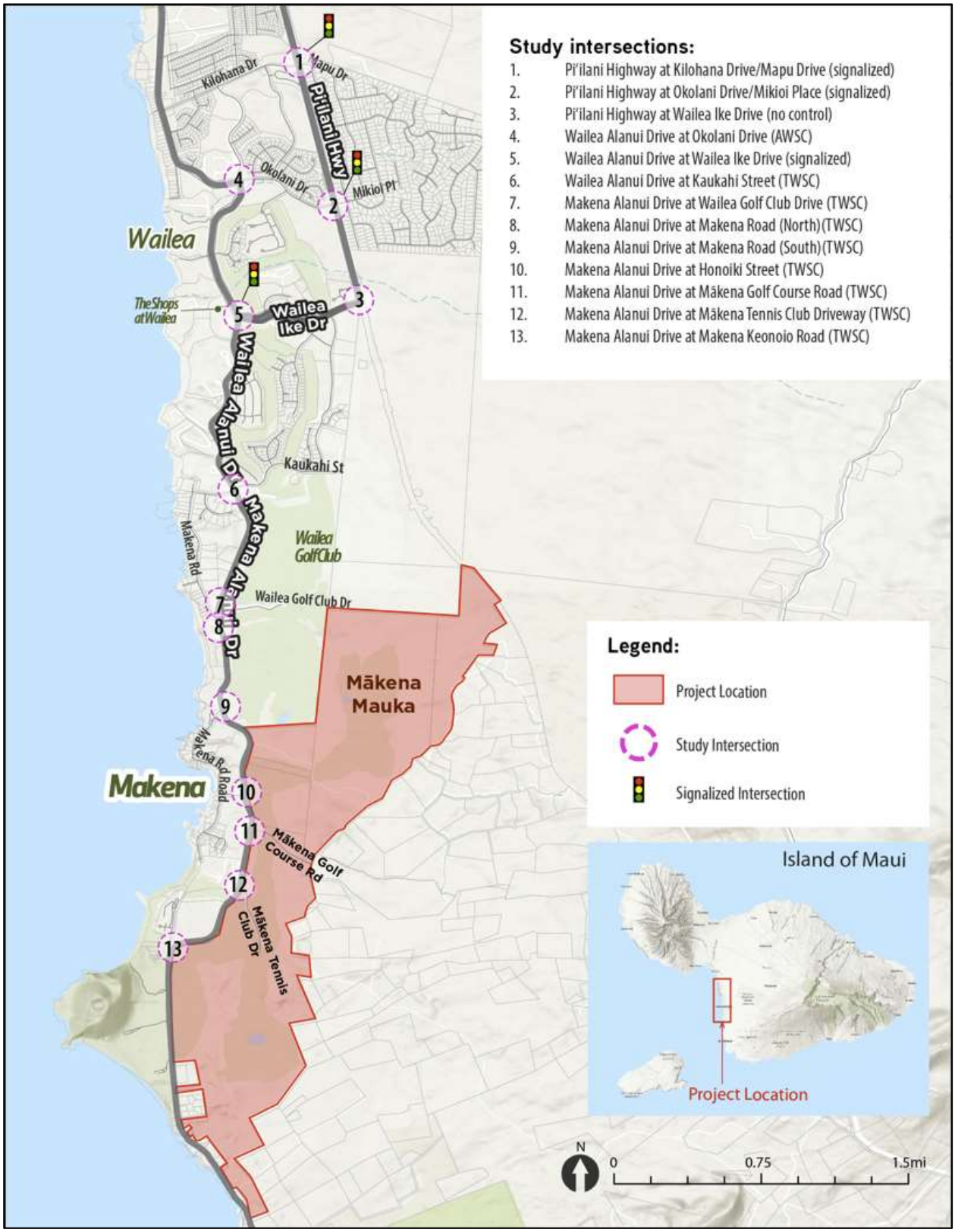

Figure 2: Project Study Area

II. EXISTING CONDITIONS

Pi‘ilani Highway and North/South Kihei Road provide access from Kihei, Wailea, and Makena to West and Central Maui. Existing and historic traffic counts show that most of the existing traffic to and from the study area uses Pi‘ilani Highway as the main roadway for regional traffic.

A. Roadway Configurations

1. Pi‘ilani Highway

Pi‘ilani Highway (State Route 31) is a north-south oriented, two to four-lane, undivided state-owned roadway extending 7.3 miles from Mokulele Highway (State Route 311) and North Kihei Road, in the north, to Wailea Ike Drive in the south. Pi‘ilani Highway transitions into a two-lane roadway between Kilohana Drive and Wailea Ike Drive. The posted speed limit for the majority of Pi‘ilani Highway ranges from 35 miles per hour (MPH) to 45 MPH. Near the southern terminus at Wailea Ike Drive, the southbound speed limit is reduced to 20 MPH. Shoulder widths of six feet to ten feet exist on both sides of Pi‘ilani Highway. These shoulders are sometimes use by cyclists as bike shoulders. At some signalized intersections with dedicated right turn lanes, the bike shoulder transitions into a marked bike lane between the through lane and dedicated right turn lane.

2. Kilohana Drive

Kilohana Drive is an undivided, two-lane, privately-owned (by Alexander & Baldwin, Inc.) roadway that extends from South Kihei Road in the west to Pi‘ilani Highway in the east. Continuous sidewalks exist on both sides of the roadway. Intersections along Kilohana Drive are stop-controlled with turn lanes. Pi‘ilani Highway transitions from a four-lane roadway to a two-lane roadway south of Kilohana Drive. The posted speed limit of Kilohana Drive is 25 MPH.

3. Wailea Ike Drive

Wailea Ike Drive is an east-west oriented, two- to four-lane, County of Maui (COM)-owned, divided roadway extending from Wailea Alanui Drive in the west, to Pi‘ilani Highway in the east. Median widths vary from six feet near Pi‘ilani Highway to 100 feet near Wailea Alanui Drive. Wailea Ike Drive intersects Wailea Alanui Drive as a signalized intersection and intersects Pi‘ilani Highway as a two-lane, uncontrolled intersection where Wailea Ike Drive transitions into Pi‘ilani Highway at an approximately 90-degree turn. Sidewalks exist on both sides of Wailea Ike Drive. The posted speed limit of Wailea Ike Drive is 30 MPH.

4. Wailea Alanui Drive

Wailea Alanui Drive is a north-south oriented two- to four-lane, divided, COM-owned roadway extending from Kilohana Drive in the north, to Kaukahi Street in the south. In the project area, Wailea Alanui Drive is a four-lane divided roadway from Okolani Drive to Kaukahi Street. A continuous sidewalk exists only on the west side of Wailea Alanui Drive. The posted speed limit of Wailea Alanui Drive is 30 MPH.

5. Makena Alanui Drive

Makena Alanui Drive is a north-south oriented, two-lane, undivided, COM-owned roadway extending from Kaukahi Street in the north, to Makena Keonoio Road, where it transitions into Makena Road. Intersections along Makena Alanui Drive are stop-controlled. Makena Alanui Drive provides access through Makena Town. Sidewalks exist on portions of the west side of Makena Alanui Drive. Sidewalks are missing on segments just south of Makena Road (north), just south of Makena Road (south), and south of the Makena Tennis Club Driveway. There are no sidewalks on the east side of Makena Alanui

Drive. A signed and striped bike lane exists on both sides of Māk Makena ena Alanui Drive from Kaukahi Street to the Mākena Tennis Club Driveway. The posted speed limit of Makena Alanui Drive is 20-30 MPH.

6. Kaukahi Street

Kaukahi Street is an east-west oriented, two-lane, privately-owned roadway starting at Makena Road on the makai side (ocean side, in this region would be west side) and extending approximately 0.75 miles on the mauka side. Kaukahi Street intersects Makena Alanui Drive at a two-way stop-controlled intersection. Kaukahi Street separates Wailea Alanui Drive to the north and Makena Alanui Drive to the south. Sidewalks existing on the north side of Kaukahi Street and on the south side of Kaukahi Street west of Wailea Alanui Drive. The posted speed limit is 20 MPH makai of Makena Alanui Drive, and 30 MPH mauka of Makena Alanui Drive.

B. Study Intersections

Existing lane configurations and traffic controls at the study intersections are shown in Figure 3. Pedestrian facilities and bike facilities are shown in Figure 4. The study intersections are included in writeups below.

1. Pi‘ilani Highway at Kilohana Drive/Mapu Drive

Pi‘ilani Highway at Kilohana Drive/Mapu Drive is a signalized intersection. Kilohana Drive approaches Pi‘ilani Highway from the west and Mapu Drive approaches Pi‘ilani Highway from the east. Pi‘ilani Highway narrows from a four-lane roadway north of Kilohana Drive to a two-lane roadway south of Kilohana Drive. A dedicated left turn lane exists for both Pi‘ilani Highway approaches. The southbound approach has a dedicated right turn lane. The minor approaching roads have a protected left turn and a shared through-right turn lane. Marked crosswalks exist across the west, east, and south legs of the intersection. The posted speed limit on Pi‘ilani Highway at this intersection is 35 MPH. The posted speed limit on Kilohana Drive is 25 MPH and on Mapu Drive is 20 MPH.

2. Pi‘ilani Highway at Okolani Drive/Mikioi Place

A traffic signal was recently installed at the Pi‘ilani Highway and Okolani Drive/Mikioi intersection on June 26, 2023. Dedicated left turn lanes exist for the northbound, southbound, and eastbound approaches. Channelized right turn lanes exist for all approaches. A marked crosswalk exists only on the west leg of the intersection. The posted speed limit on Pi‘ilani Highway at this intersection is 35 MPH. The posted speed limit on Okolani Drive is 30 MPH and on Mikioi Place is 20 MPH.

3. Pi‘ilani Highway at Wailea Ike Drive

Pi‘ilani Highway at Wailea Ike Drive is a two-way, two-lane, uncontrolled intersection. The Pi‘ilani Highway approaches the intersection from the north and Wailea Ike Drive approaches the intersection from the west. There is no stop control, as the two movements do not conflict with each other, transitioning from one road to the other at an approximately 90-degree turn. There are no marked crosswalks at the intersection. The posted speed limit on the Pi‘ilani Highway southbound approach is 20 MPH. The posted speed limit on Wailea Ike Drive is 30 MPH. This intersection will become the main access for the future Honua‘ula development.

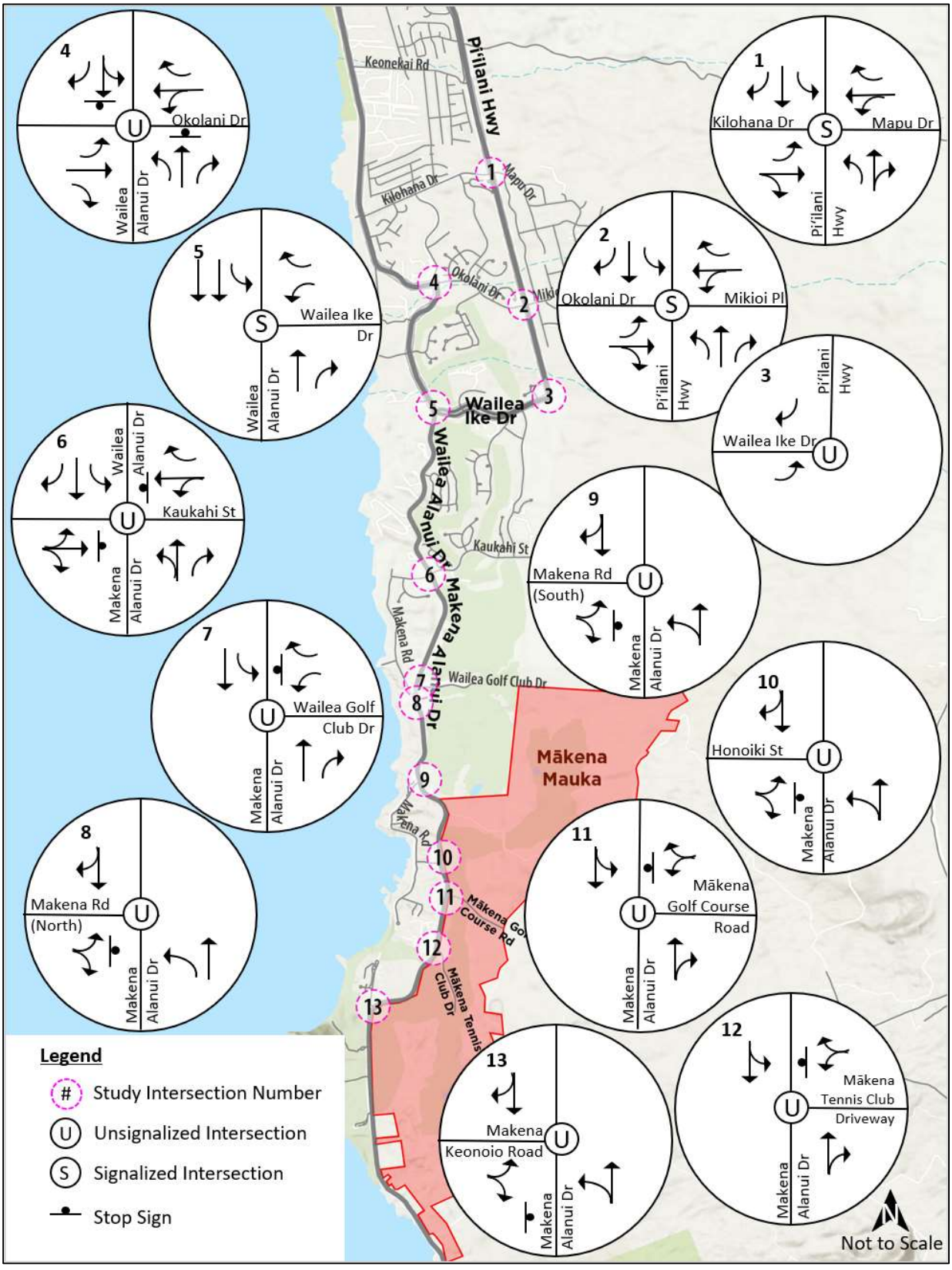

Figure 3: Existing Lane Configuration



Figure 4: Existing Pedestrian and Bicycle Facilities

4. Wailea Alanui Drive at Okolani Drive

Wailea Alanui Drive at Okolani Drive is an all-way stop-controlled (AWSC) intersection. The northbound and eastbound approaches have an exclusive left turn lane, through lane, and right turn lane. The southbound and westbound approaches have shared left-through lanes and an exclusive right turn lane. There are marked crosswalks across the north, south, and west legs. All right turn lanes are channelized except for the southbound right turn lane from Wailea Alanui Drive onto Okolani Drive. Medians exist on each approach at this intersection. The posted speed limit on both roadways is 30 MPH.

5. Wailea Alanui Drive at Wailea Ike Drive

Wailea Alanui Drive at Wailea Ike Drive is a signalized intersection. This is the only signalized intersection in the project area not located along Pi‘ilani Highway. The Wailea Ike Drive southbound left turn is protected. Exclusive turn lanes and medians exist for each approach. Marked crosswalks exist across each leg of the intersection. The posted speed limit on both roadways is 30 MPH.

6. Wailea Alanui Drive/Makena Alanui Drive at Kaukahi Street

Wailea Alanui Drive and Makena Alanui Drive at Kaukahi Street is a two-way stop-controlled (TWSC) intersection with stop control on the Kaukahi Street approaches. Wailea Alanui Drive intersects Kaukahi Street from the north. South of Kaukahi Street, Wailea Alanui Drive transitions into Makena Alanui Drive. Wailea Alanui Drive transitions from a four-lane roadway north of Kaukahi Street to a two-lane roadway south of Kaukahi Street. A striped and signed bike lane exists on Makena Alanui Drive in both directions south of this intersection. A marked crosswalk exists across the north leg of the intersection. Sidewalks exist on the west side of Wailea Alanui Drive and Makena Alanui Drive, and on the north side of Kaukahi Street. The posted speed limit on Wailea Alanui Drive and Makena Alanui Drive is 30 MPH. The posted speed limit on Kaukahi Street is 20 MPH.

7. Makena Alanui Drive at Wailea Golf Club Drive

Makena Alanui Drive at Wailea Golf Club Drive is a T-intersection with stop control on the Wailea Golf Club Drive approach. Wailea Golf Club Drive approaches from the east. The Wailea Golf Club Drive is gated and closed after business hours. Exclusive left turn and right turn lanes exist for each movement. Bike lanes exist on Makena Alanui Drive. There are no marked crosswalks at this intersection. The west side of Makena Alanui Drive has a sidewalk. The posted speed limit on Makena Alanui Drive is 30 MPH. There is no posted speed limit on Wailea Golf Club Drive.

8. Makena Alanui Drive at Mākena Road (North)

Makena Alanui Drive at Makena Road (North) is a T-intersection with stop control on the Makena Road approach. Makena Road (North) provides access to residential housing and beaches on the west side of Makena Alanui Drive. Bike lanes exist on Makena Alanui Drive. There are no marked crosswalks at this intersection. A sidewalk exists on the west side of Makena Alanui Drive. The posted speed limit on Makena Alanui Drive is 30 MPH. There is no posted speed limit on Makena Road (North).

9. Makena Alanui Drive at Mākena Road (South)

Makena Alanui Drive at Makena Road (South) is a T-intersection with stop control on the Makena Road approach. Makena Road (South) provides access to residential housing and beaches on the west side of Makena Alanui Drive. Bike lanes exist on Makena Alanui Drive. There are no marked crosswalks at this intersection. The west side of Makena Alanui Drive has a sidewalk. The posted speed limit on Makena Alanui Drive is 30 MPH. There is no posted speed limit on Makena Road (South).

10. Makena Alanui Drive at Honoiki Street

Makena Alanui Drive at Honoiki Street is T-intersection with stop control on the Honoiki Street approach. Honoiki Street approaches this intersection from the west. Honoiki Street provides access to Makena Road which runs parallel to Makena Alanui Drive. Honoiki Street will be the main access for the future Mākena Mauka development. Bike lanes exist on Makena Alanui Drive. A marked crosswalk exists on the west leg of this intersection. The west side of Makena Alanui Drive has a sidewalk. The posted speed limit on Makena Alanui Drive is 30 MPH. There is no posted speed limit on Honoiki Street.

11. Makena Alanui Drive at Mākena Golf Course Driveway

Makena Alanui Drive at the Mākena Golf Course Driveway is a gated TWSC intersection. A sidewalk exists on the west side of Makena Alanui Drive. There are no marked crosswalks at this intersection. Bike lanes exist on Makena Alanui Drive. The posted speed limit on Makena Alanui Drive is 30 MPH. There is no posted speed limit on the future Mākena Golf Course Driveway.

12. Mākena Alanui Drive at Mākena Tennis Club Driveway

Māk Makena ena Alanui Drive at the Mākena Tennis Club Driveway is a TWSC intersection with stop control for the minor approaches. A sidewalk exists on the west side of Makena Alanui Drive. There are no marked crosswalks at this intersection. Bike lanes exist on Makena Alanui Drive. The posted speed limit on Makena Alanui Drive is 30 MPH. There is no posted speed limit on the Mākena Tennis Club Driveway.

13. Makena Alanui Drive at Makena Keonoio Road

Makena Alanui Drive at Makena Keonoio Road is a TWSC intersection with stop controlled for the minor approach. There are no marked crosswalks or sidewalks at this intersection. Bike lanes do not exist at this intersection. Makena Keonoio Road leads to Maluaka Beach. The posted speed limit on Makena Alanui Drive is 30 MPH. There is no posted speed limit on Makena Keonoio Road.

C. Bus Stops and Bus Routes

Maui Bus provides one bus route from Kahului to Wailea. Route 10 (Kihei Islander) provides access from Queen Kaʻahumanu Center in Kahului to Wailea Ike Drive in Wailea. A Route 10 bus leaves Queen Kaʻahumanu Center every hour from 5:30 AM to 7:30 PM. Route 10 takes two hours to complete a roundtrip beginning and ending at Queen Kaʻahumanu Center. There are two stops in the study area: westbound at Wailea Alanui Drive and Okolani Drive and eastbound at Wailea Alanui Drive and Wailea Ike Drive. A bench exists at both bus stops. Existing Maui Bus data can be found in Appendix A.

D. Volumes

1. Vehicular Volume

a) Roadway Traffic Volumes

Historical average annual daily traffic (AADT) exists at a station along Piʻilani Highway between Lipoa Street and East Welakahao Road (see Figure 5). This station captures and represents the traffic pattern between Kihei and Wailea/Makena. The AADT is based on Hawaiʻi DOT traffic counts included in *Historical Traffic Station Maps.*



Figure 5: HDOT Station Location Map – Lipoa Street to East Welakahao Road

The HDOT historical 24-hour traffic volume distribution shows a variation in travel patterns throughout the day with prominent morning and a longer afternoon commuter peak period. The historical AADT from years 2016-2024 are shown in Table 1. The monthly average daily traffic (ADT) from years 2016-2024 are shown in Figure 6. At the time of this TIAR, 2024 data was available up to April 2024. The general yearly pattern shows the highest monthly volumes to be in January, with the lowest monthly volumes in September. The impact of the Covid-19 pandemic can be seen in the year 2020 and 2021 data. After that, traffic volumes returned to slightly less than pre-pandemic levels until the August 2023 Lahaina wildfires, which resulted in a significant drop in traffic volume. Traffic volumes returned to pre-fire levels after about three months.

Table 1: Historical Roadway Traffic Volumes

Pi'ilani Highway between Lipoa Street and East Welakahao Road	
Year	AADT
2016	35,476
2017	-
2018	36,381
2019	35,582
2020	22,787
2021	31,472
2022	32,921
2023	32,464
2024	33,535*

*AADT from January 2024 to April 2024

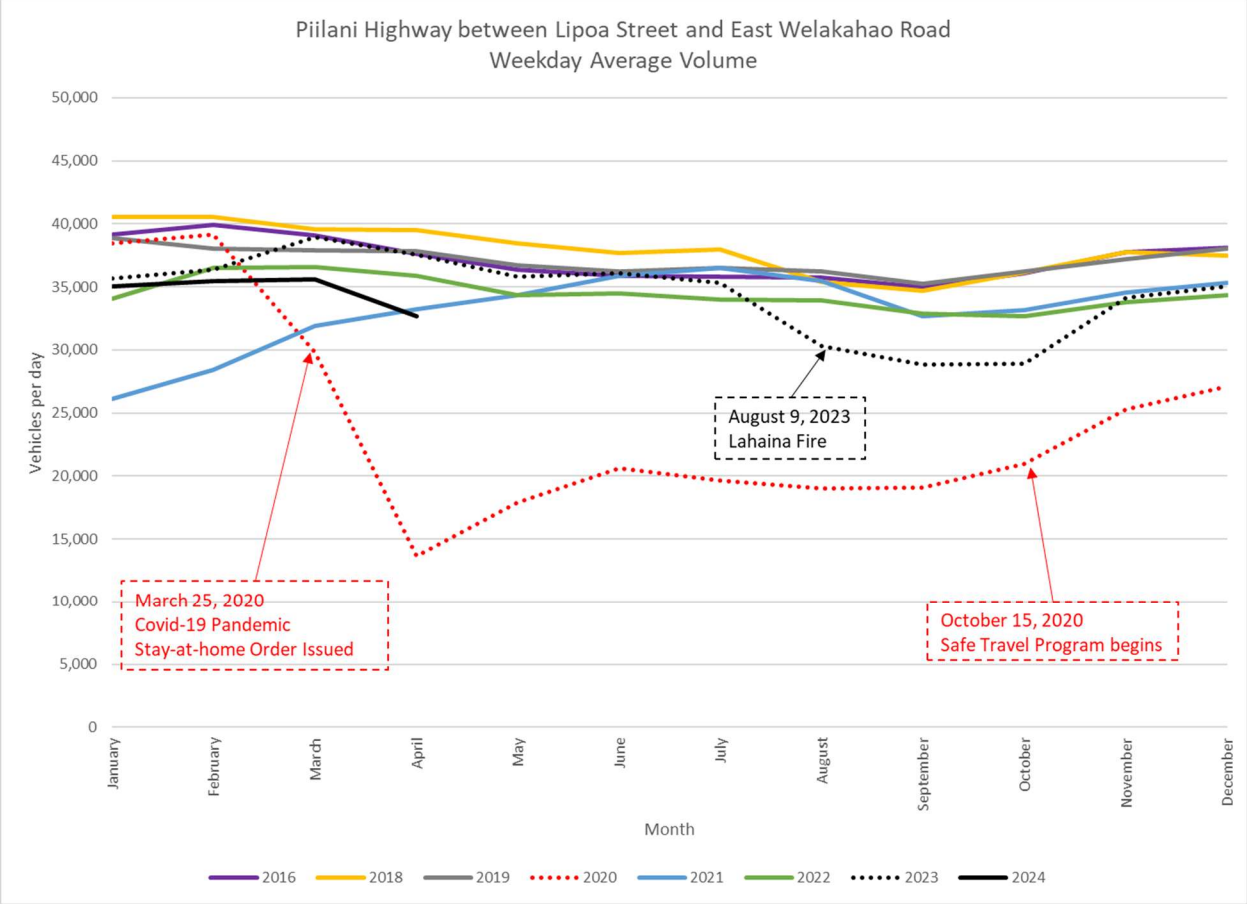

Figure 6: Historic Monthly ADT on Pi'ilani Highway – Lipoa Street to East Welakahao Road

The HDOT historical 24-hour traffic volume distribution along Wailea Alanui Drive between Malukai Lane and Hale Ali'i Place (see Figure 7) shows a travel pattern increasing throughout the day until the afternoon peak hour in the northbound direction, and a distinct AM peak with descending traffic volumes in the southbound direction. This general traffic pattern was reflected in the intersection peak hour volumes.

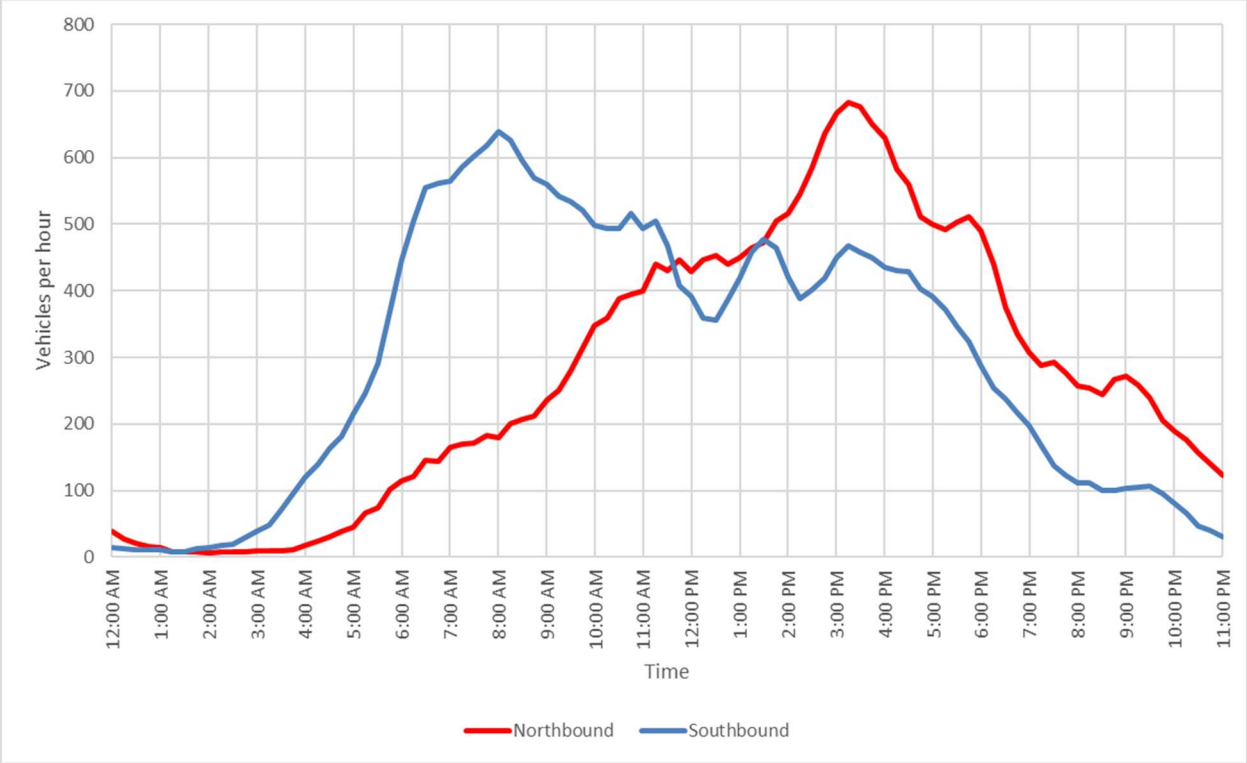

Figure 7: Historic 24-Hour Volumes on Pi'ilani Highway – Lipoa Street to East Welakahao Road

b) Existing Intersection Peak Hour Volumes

Manual intersection turning movement traffic counts were taken at the study intersections during the commuter peak periods on Tuesday, May 9, 2024. Counts included a tabulation of passenger vehicles, heavy trucks, pedestrians, and bicycles. The Existing (2024) peak hour volumes are shown in Figure 8. Detailed peak period counts are included in Appendix A. The peak hour was determined to be 7:30 – 8:30 AM and 3:30 – 4:30 PM.

2. Pedestrian and Bicycle Volumes

Pedestrian and bicycle volumes were low at the Pi'ilani Highway intersections. Overall, the pedestrian and bicycle volumes were higher in the AM than the PM. Pedestrian volumes were highest in the Wailea Resort area. Bicycle volumes were moderate and consistent on Makena Alanui Drive and Wailea Alanui Drive, even where exclusive bike lanes did not exist. Table 2 and Table 3 shows the Existing (2024) pedestrian and bicycle count, respectively.

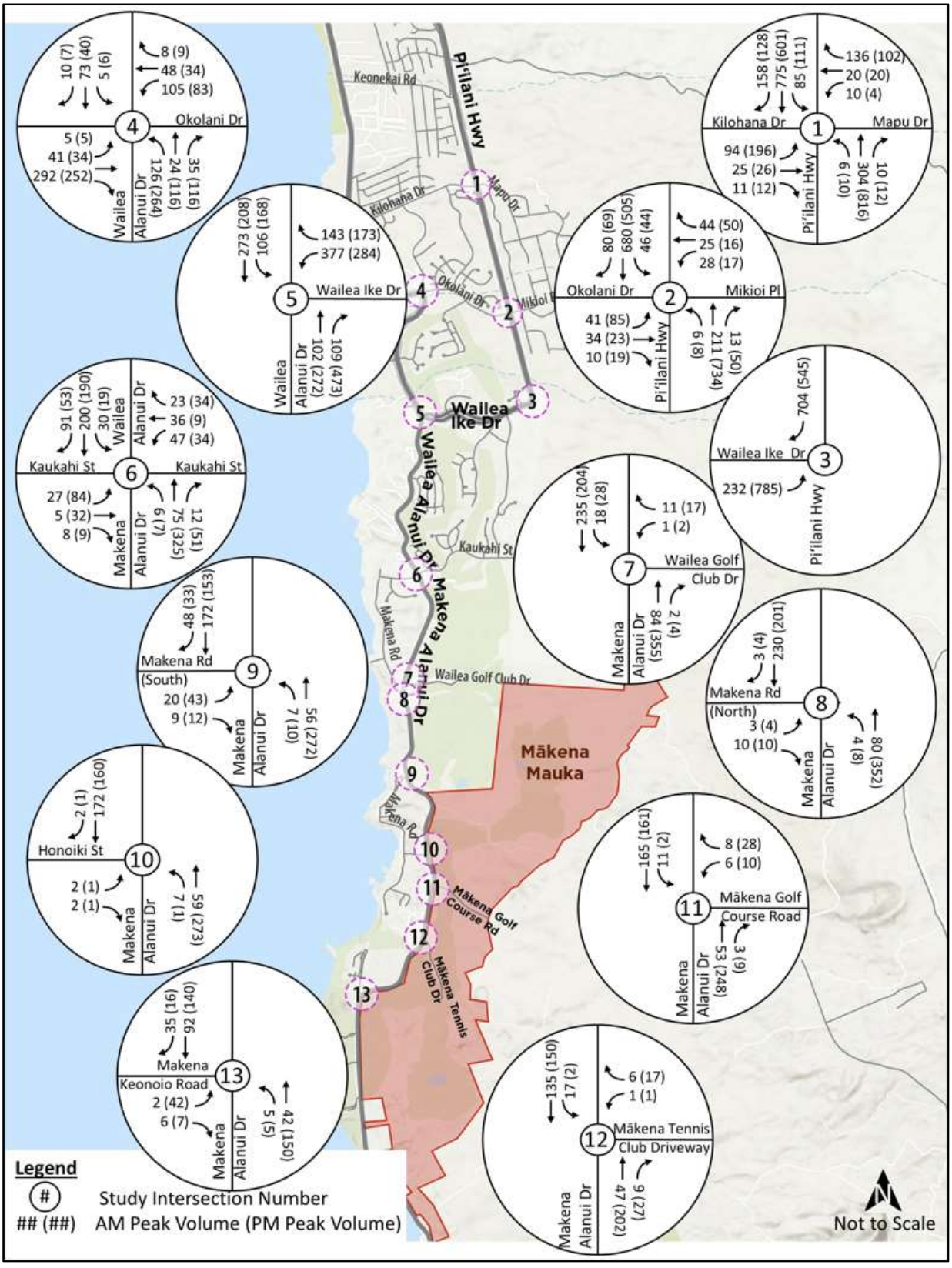

Figure 8: Existing (2024) Peak Hour Volumes

Table 2: Existing (2024) Pedestrian Volumes

	Intersection	AM Peak Hour (7:30 - 8:30 AM)					PM Peak Hour (3:30 - 4:30 PM)				
		North Leg	East Leg	South Leg	West Leg	Total	North Leg	East Leg	South Leg	West Leg	Total
1	Pi'ilani Hwy. & Kilohana Dr./Mapu Dr.	0	0	0	0	0	0	2	0	0	2
2	Pi'ilani Hwy. & Okolani Dr./Mikioi Pl.	3	0	0	0	3	0	0	0	0	0
3	Pi'ilani Hwy. & Wailea Ike Dr.	0	0	1	0	1	0	0	0	0	0
4	Wailea Alanui Dr. & Okolani Dr.	18	2	3	32	55	1	0	1	7	9
5	Wailea Alanui Dr. & Wailea Ike Dr.	3	1	51	0	55	0	0	22	0	22
6	Wailea Ike Dr./Makena Alanui Dr. & Kaukahi St.	15	0	1	0	16	0	0	0	0	0
7	Makena Alanui Dr. & Wailea Golf Club Dr.	0	3	1	2	6	0	0	0	0	0
8	Makena Alanui Dr. & Makena Rd. (north)	0	0	1	1	2	0	0	0	0	0
9	Makena Alanui Dr. & Makena Rd. (south)	0	2	0	5	7	0	0	0	0	0
10	Makena Alanui Dr. & Honoiki St.	0	1	0	7	8	0	0	0	0	0
11	Makena Alanui Dr. & Mākena Golf Course Dr.	0	2	1	1	4	0	1	0	0	1
12	Makena Alanui Dr. & Mākena Tennis Club Dr.	0	0	0	6	6	0	0	0	0	0
13	Makena Alanui Dr. & Makena Keonoio Rd.	0	1	0	0	1	0	0	0	4	4

Table 3: Existing (2024) Bike Volumes

	Intersection	AM Peak Hour (7:30 - 8:30 AM)					PM Peak Hour (3:30 - 4:30 PM)				
		SB	WB	NB	EB	Total	SB	WB	NB	EB	Total
1	Pi'ilani Hwy. & Kilohana Dr./Mapu Dr.	0	3	4	0	0	0	1	2	0	3
2	Pi'ilani Hwy. & Okolani Dr./Mikioi Pl.	0	3	0	1	4	0	0	3	0	3
3	Pi'ilani Hwy. & Wailea Ike Dr.	1	0	0	6	7	1	0	0	0	1
4	Wailea Alanui Dr. & Okolani Dr.	1	5	4	2	12	0	1	1	5	7
5	Wailea Alanui Dr. & Wailea Ike Dr.	0	0	5	0	5	1	0	2	0	3
6	Wailea Ike Dr./Makena Alanui Dr. & Kaukahi St.	2	2	8	2	14	0	1	1	0	2
7	Makena Alanui Dr. & Wailea Golf Club Dr.	0	2	10	0	12	0	0	2	0	2
8	Makena Alanui Dr. & Makena Rd. (north)	0	0	12	1	13	0	0	2	2	4
9	Makena Alanui Dr. & Makena Rd. (south)	3	0	5	3	11	2	0	1	1	4
10	Makena Alanui Dr. & Honoiki St.	2	0	6	0	8	1	0	1	0	2
11	Makena Alanui Dr. & Mākena Golf Course Dr.	2	0	9	0	11	1	0	1	0	2
12	Makena Alanui Dr. & Mākena Tennis Club Dr.	2	0	8	0	10	1	0	1	0	2
13	Makena Alanui Dr. & Makena Keonoio Rd.	2	0	9	6	17	0	0	1	0	1

SB - southbuond, WB - westbound, NB - northbound, EB - eastbound

E. Field Observations

1. Peak Hour Queue

The southbound direction has the highest directional volume in the AM peak hour. South of Kilohana Drive, vehicles travelling through Pi'ilani Highway onto Wailea Ike Drive are free-flow and do not experience delay during the AM peak.

The northbound direction has the highest directional volume in the PM peak hour. It was observed that vehicles traveling along Pi'ilani Highway in the northbound direction start queuing at the Kilohana Drive signalized intersection and queuing continues south to Wailea Ike Drive during the PM peak hour. North of this intersection, Pi'ilani Highway is a four-lane highway and the traffic dissipates quickly. The queue is likely a product of the signal at Kilohana Drive and Pi'ilani Highway only having one northbound approach lane.

2. Vehicle Speed

The posted speed limit on Makena Alanui Drive near the Mākena Tennis Club Driveway is 30 MPH. However, during field observations, vehicles south of the tennis courts were observed to drive above the posted speed limit. This section of Makena Alanui Drive has travel lanes of about 12 feet. There are no shoulders, curbs, bike lanes, or sidewalks.

F. Traffic Operation Analysis Methodology

1. Level of Service

Level of service (LOS) is an operational analysis rating system used in traffic engineering to measure the effectiveness of roadway operating conditions. There are six LOS ranging from A to F. LOS A is defined as being the least interrupted flow conditions with little or no delays, whereas LOS F is defined as conditions where extreme delays exist. Intersection LOS and delay were determined for the AM and PM peak hours using *Synchro 11* traffic analysis software and analyzed using *HCM* 6th Edition (*HCM 6th*) (TRB, 2016) methodologies. The LOS analysis for signalized intersections is based on average total vehicle delay based on the methodologies of the *HCM 6th*, as shown in Table 4.

Table 4: LOS Criteria for Signalized Intersections

Average Control Delay (s/veh)	LOS by v/c Ratio	
	<=1.0	>1.0
≤ 10.0	A	F
>10 and ≤15	B	F
>15 and ≤25	C	F
>25 and ≤35	D	F
>35 and ≤50	E	F
>50	F	F

Source: *HCM 6th* (TRB, 2016)

As stated in the *HCM 6th*, LOS for an all-way stop-controlled (AWSC) and a two-way stop-controlled (TWSC) intersection is determined by the measured control delay (see Table 5). Delay at an AWSC intersection is defined for the intersection as a whole and for each movement. Delay at a TWSC intersection is defined by each minor movement and not for the major movements or intersection as a whole. This is because vehicles traveling along the major, free-flow road, of a TWSC intersection, proceed through with minimal delay. Those vehicles approaching the intersection along the minor movement (side-street) are controlled by a stop sign and thus experience delay attributable to the volume of vehicles passing along the free-flow road and the gaps available.

Another measure of intersection delay is the volume to capacity (v/c) ratio. This is the ratio of the volume of traffic utilizing the intersection compared to the maximum volume of vehicles that can be accommodated by the intersection during a specific period. A v/c ratio under 0.85 means the intersection is operating under capacity and excessive delays are not experienced. An intersection is operating near its capacity when v/c ratios range from 0.85 to 0.95. Unstable flows are expected when the v/c ratio is between 0.95 and 1.0. A traffic movement can have a poor LOS but low v/c, which suggests that the traffic volumes along that movement are low but must wait a long time to make the movement. This is common for low volume protected turn movements or side streets that must wait through a long cycle length for their phase to come up.

Table 5: LOS Criteria for Unsignalized Intersections

Average Control Delay (s/veh)	LOS by v/c Ratio	
	<=1.0	>1.0
≤ 10.0	A	F
>10 and ≤20	B	F
>20 and ≤35	C	F
>35 and ≤55	D	F
>55 and ≤80	E	F
>80	F	F

Source: *HCM 6th* (TRB, 2016)

2. LOS Standards

LOS standards were obtained from the HDOT *Best Practices for Traffic Impact Analysis Reports* (HDOT, 2010). This report establishes four thresholds that are defined to have significant impacts:

- If the operations of an intersection, turning movement, or roadway segment changes from LOS D or better to LOS E or F.
- If the roadway element is already operating at LOS E or F, and the delay for that location increases by 5 percent or more with the project.
- If the intersection, turning movement or roadway segment LOS decreases by two or more levels, but not below LOS D, a critical assessment of the location should be conducted.
- For other elements of the system (other than intersections), if the service measure used to determine LOS (e.g., density or speed) degrades by five percent or more.

All intersections along the State-owned Piʻilani Highway that exceed the overall LOS D or worse threshold will be analyzed with potential mitigation to improve the overall intersection to LOS D or better.

LOS standards were obtained from the *County of Maui Street Design Manual* (COM, 2018) and applies for City owned roadways. It that states that the standard for intersections in town centers and less densely populated areas for the peak hour of traffic is LOS "E" and LOS "D," respectively. All intersections besides ones that intersect with Piʻilani Highway (State owned) will use the LOS "D" standard for town centers.

G. Existing (2024) Intersection LOS

Existing (2024) intersection and travel movement LOS and average delay (in seconds per vehicle) were determined for the AM and PM peak hours at the study intersections and are shown in Tables 6 and 7. The southbound right turn and eastbound left turn at Piʻilani Highway at Wailea Ike Drive are free movements that will not result in any notable delay. Intersections and individual movements that operate at LOS E or worse are highlighted in yellow. Existing (2024) Synchro worksheets can be found in Appendix B.

Table 6: Existing (2024) Intersection LOS

Existing (2024)	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
1 - Pi'ilani Hwy & Kilohana Dr/Mapu Dr	**B**	**12.6**	**-**	**C**	**27.0**	**-**
Pi'ilani NB Left	D	48.0	0.43	F	98.4	0.50
Pi'ilani NB Through-Right	A	6.8	0.31	B	18.2	0.67
Pi'ilani SB Left	D	37.2	0.77	F	88.8	0.84
Pi'ilani SB Through	A	9.4	0.69	A	9.0	0.44
Kilohana EB Left	C	26.7	0.38	E	72.9	0.76
Kilohana EB Through-Right	C	24.9	0.11	E	59.3	0.09
Mapu WB Left-Through	C	24.9	0.10	E	59.2	0.08
2 - Pi'ilani Hwy & Okolani Dr/Mikioi Place	**B**	**10.5**	**-**	**B**	**11.0**	**-**
Pi'ilani NB Left	D	36.2	0.42	D	35.5	0.42
Pi'ilani NB Through	A	7.0	0.27	B	11.5	0.82
Pi'ilani SB Left	C	21.3	0.51	C	24.8	0.53
Pi'ilani SB Through	A	9.8	0.79	A	6.7	0.52
Okolani EB Left	B	15.0	0.12	B	19.1	0.29
Okolani EB Through-Right	B	15.1	0.17	B	18.1	0.13
Mikioi WB Left-Through	B	15.2	0.17	B	18.1	0.12
3 - Pi'ilani Hwy & Wailea Ike Dr	**Free-Flow**					
4 - Wailea Alanui Dr & Okolani Dr	**B**	**11.8**	**-**	**B**	**14.7**	**-**
Wailea Alanui NB Left	B	12.2	0.27	C	19.5	0.60
Wailea Alanui NB Through	A	9.5	0.05	B	11.3	0.25
Wailea Alanui NB Right	A	8.9	0.06	B	10.1	0.22
Wailea Alanui SB Left-Through	B	10.8	0.16	B	11.5	0.12
Wailea Alanui SB Right	A	8.9	0.02	A	9.8	0.02
Okolani EB Left	A	9.4	0.01	B	10.3	0.01
Okolani EB Through	A	9.3	0.08	B	10.3	0.08
Okolani EB Right	B	12.8	0.47	C	15.5	0.52
Okolani WB Left-Through	B	12.5	0.31	B	13.8	0.30
Okolani WB Right	A	8.5	0.01	B	9.6	0.02
5 - Wailea Alanui Dr & Wailea Ike Dr	**C**	**24.1**	**-**	**C**	**29.8**	**-**
Wailea Alanui NB Through	B	11.8	0.13	B	14.5	0.40
Wailea Alanui SB Left	D	45.2	0.78	F	83.7	0.97
Wailea Alanui SB Through	A	6.3	0.14	A	5.2	0.11
Wailea Ike WB Left	C	34.5	0.88	C	30.6	0.85
6 - Wailea Alanui Dr & Kaukahi St	**-**	**3.4**	**-**	**-**	**3.8**	**-**
Makena Alanui NB Left-Through	A	7.7	0.01	A	7.6	0.01
Wailea Alanui SB Left	A	7.4	0.02	A	8.0	0.02
Kaukahi EB Left-Through-Right	B	12.0	0.08	C	17.6	0.32
Kaukahi WB Left-Through	B	12.8	0.16	C	15.9	0.12
7 - Makena Alanui Dr & Wailea Golf Course Dr	**-**	**0.7**	**-**	**-**	**0.7**	**-**
Wailea Alanui SB Left	A	7.4	0.01	A	8.2	0.03
Wailea Golf Course WB Left	B	10.9	0.01	B	14.1	0.01
Wailea Golf Course WB Right	A	8.8	0.01	B	10.7	0.03

Table 7: Existing (2024) Intersection LOS (cont.)

Existing (2024)	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
8 - Makena Alanui Dr & Makena Rd (North)	-	**0.5**	-	-	**0.4**	-
Makena Alanui NB Left	A	7.8	0.01	A	7.7	0.01
Makena Rd (North) EB Left-Right	A	9.9	0.02	B	10.9	0.03
9 - Makena Alanui Dr & Makena Rd (South)	-	**1.1**	-	-	**1.5**	-
Makena Alanui NB Left-Through	A	7.7	0.01	A	7.7	0.01
Makena Rd (South) EB Left-Right	B	10.1	0.04	B	12.5	0.12
10 - Makena Alanui Dr & Honoiki St	-	**0.4**	-	-	**0.1**	-
Makena Alanui NB Left-Through	A	7.7	0.01	A	7.6	0.01
Honoiki EB Left-Right	A	9.8	0.01	B	10.6	0.01
11 - Makena Alanui Dr & Mākena Golf Course Dwy	-	**0.9**	-	-	**0.9**	-
Makena Alanui SB Left-Through	A	7.4	0.01	A	7.9	0.01
Mākena Golf Course WB Left-Right	A	9.4	0.02	B	10.9	0.07
12 - Makena Alanui Dr & Mākena Tennis Club Dwy	-	**0.9**	-	-	**0.1**	-
Makena Alanui SB L-T	A	7.4	0.01	A	7.8	0.01
Mākena Tennis Club WB L-R	A	8.8	0.01	A	9.9	0.03
13 - Makena Alanui Dr & Makena Keonoio Rd	-	**0.6**	-	-	**1.6**	-
Makena Alanui NB L-T	A	7.5	0.01	A	7.6	0.01
Makena Keonoio EB L-R	A	9.1	0.01	B	11.2	0.10

1. Pi‘ilani Highway at Kilohana Drive/Mapu Drive

This intersection operates at LOS B and LOS C during the AM and PM peak hours, respectively. During the PM peak hour, the Pi‘ilani Highway left turns and the Kilohana Drive and Mapu Drive approaches operate at LOS E or worse. At this intersection, the main line traffic operations are prioritized over the turn lanes and minor street approaches. North of this intersection, Pi‘ilani Highway widens to four lanes.

2. Pi‘ilani Highway at Okolani Drive/Mikioi Place

This intersection operates at LOS B during the AM and PM peak hours. All movements at this intersection operate at an acceptable LOS.

3. Pi‘ilani Highway at Wailea Ike Drive

All movements at this intersection are free-flow and do not experience measurable delay.

4. Wailea Alanui Drive at Okolani Drive

This intersection operates at LOS B during the AM and PM peak hours. All movements at this intersection operate at an acceptable LOS.

5. Wailea Alanui Drive at Wailea Ike Drive

The overall intersection operates at LOS C during the AM and PM peak hours. The southbound left turns operate at LOS F during PM peak hour, with 83.7 seconds of delay and a v/c of 0.97. The southbound left turn volume in the PM peak hour is 168 vph and this movement was observed to clear the intersection every cycle. All other movements operate at LOS D or better.

6. Wailea Alanui Drive/Makena Alanui Drive at Kaukahi Street

All movements operate at LOS C or better for both peak hours.

7. Makena Alanui Drive at Wailea Golf Course Drive
All movements operate at LOS B or better for both peak hours.

8. Makena Alanui Drive at Makena Road (North)
All movements operate at LOS B or better for both peak hours.

9. Makena Alanui Drive at Makena Road (South)
All movements operate at LOS B or better for both peak hours.

10. Makena Alanui Drive at Honoiki Street
All movements operate at LOS B or better for both peak hours.

11. Makena Alanui Drive at Mākena Golf Course Driveway
All movements operate at LOS B or better for both peak hours.

12. Makena Alanui Drive at Mākena Tennis Club Driveway
All movements operate at LOS B or better for both peak hours.

13. Makena Alanui Makena at Mākena Keonoio Road
All movements operate at LOS B or better for both peak hours.

H. Mitigation for Existing (2024) Conditions

The Piʻilani Highway at Kilohana Drive/Mapu Drive intersection does not have any viable short-term improvements that can improve the existing delay in the PM. The analysis suggests green time can be redistributed from the Piʻilani Highway through phases to provide more green time for the other phases, however, that will result in increased delay along Piʻilani Highway and it is recommended that the main line be prioritized at this intersection. The intersection operates at an acceptable LOS and thus short-term changes are not recommended for this intersection.

The Wailea Alanui Drive at Wailea Ike Drive southbound left turn in the PM peak hour operates at LOS F. The signal timing can be adjusted to ensure that the southbound left turn lane clears the queue every cycle. The southbound left turn volume is 168 vph and the queue cleared the intersection every cycle during field observations. Short term changes are not recommended for this intersection.

III. Future Without Project Conditions

The Future conditions were evaluated for the 10, 20 and 30-year milestone years, corresponding to years 2038, 2048, and 2058 after construction begins in 2028. Background growth and future traffic volume projections were included in the analysis for the milestone years. Future intersection LOS were evaluated without the development to reflect future without project conditions.

A. Future Surrounding Area Development

Future surrounding area developments were identified and cross checked with the COM Project Viewer Status website and the State of Hawai'i *Environmental Review Program* (ERP) website on December 12, 2024. Future surrounding area developments were then narrowed down to those developments that were assumed likely to be constructed and occupied by 2038, 2048 and 2058. The future surrounding area developments are shown in Figure 9.

1. Maluaka Development

The Maluaka Development consists of 13 single-family homes and six (6) multi-family homes. The project was initiated in 2009 and was expected to be completed by 2022. The project has completed construction of the infrastructure, multi-family buildings, and six (6) of the 13 single-family homes. As such, the completed homes were captured in the May 9, 2024 data collection. The remaining seven (7) single-family homes yet to be completed will add incidental traffic volume to the project, and is assumed to be captured in the future background growth rate.

2. Mākena Resort H-M

The Mākena Resort H-M will be located at the previous site of the Mākena Beach and Golf Resort which closed on July 1, 2016. The original plan included a 76-room hotel, 50 apartment units, and 12 multi-family and 14 single-family residential units. The Special Management Area (SMA) Permit was approved in 2014 and an amendment to that SMA Permit was approved in 2017. The latest plan includes 55 multi-family and ten (10) single-family residential units, a beach club (restaurant, fitness, spa, etc.), and related improvements. Construction for this project has begun. A traffic report detailing the project generated trips was not able to be located and therefore project related trips were calculated using the *ITE Trip Generation Manual, 11th Edition* (ITE, 2021) and included in the Future (2038) Without Project volumes.

3. Mākena Resort M-5/M-6/S-7/B-2

The Mākena Resort M-5/M-6/S-7/B-2 development originally consisted of 46 resort single-family residential units, 88 resort multi-family residential units, ten (10) transient vacation rental units, 14 residential condominium units and approximately 27,300 square feet of retail space. This development is located near Mākena H-1, H-2 and H-M in the Makena Resort area. The SMA Permit was approved in 2017 and amended in 2021. The amended project will include 30 multi-family units, 18 single-family cottages, 32-single family custom lots, nine (9) transient vacation rental units, 14 residential condominiums, and 27,300 square feet of retail space. An updated traffic report detailing this reduction was not able to be located and therefore project related trips were calculated using the *ITE Trip Generation Manual*. Construction schedule for this project was not available. However, the project was included in the Future (2038) Without Project traffic volumes.

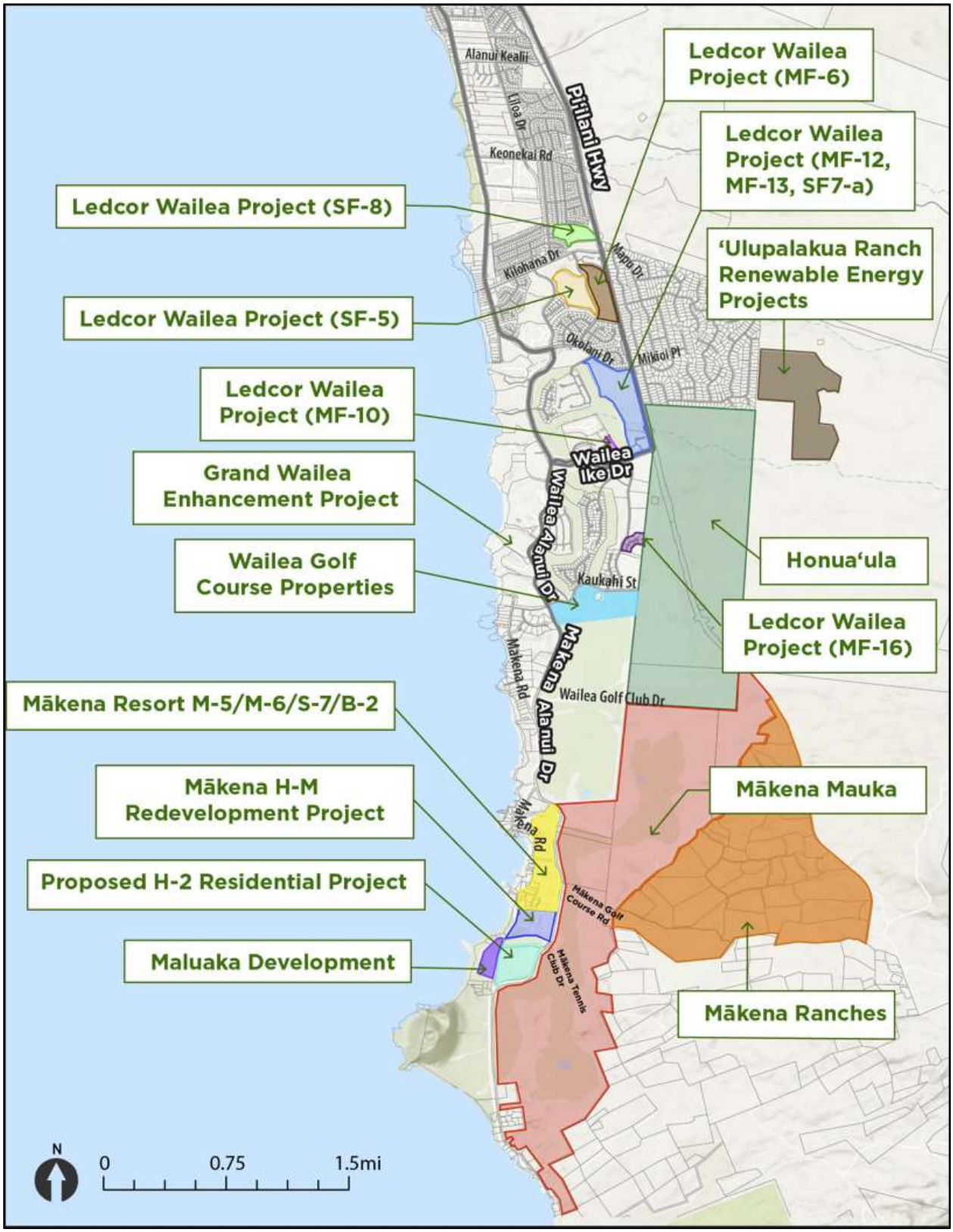

Figure 9: Future Surrounding Area Development

4. Ledcor Wailea Projects

The Ledcor Wailea Projects include 925 to 975 single-family and multi-family homes with open space amenities and various pedestrian paths. The 2025 *Ledcor Wailea Projects Final EIS* (PBR Hawai‘i, 2025) is pending acceptance. The 2033 project generated trips from the *2025 Ledcor Wailea Projects Final EIS* were included with the Future (2038) background volumes. The 2042 project generated trips from the *2025 Ledcor Wailea Projects Final EIS* were added to the Future (2048) volumes.

The traffic analysis from the *2025 Ledcor Wailea Projects Final EIS* projected the northbound left turn at Wailea Alanui Drive and Okolani Drive to operate at LOS E, but below capacity in 2033. In 2042, the northbound left turn was projected to operate at LOS F and over capacity. In 2042, it was recommended that a single lane roundabout, or stop control modification be considered, with future monitoring to determine if a signal, roundabout, or stop control modifications are warranted.

5. Grand Wailea Enhancement Project

The Grand Wailea Enhancement Project will add 137 hotel rooms to the Wailea Resort. It was noted that the SMA permit is currently under review. A traffic report detailing the project generated trips was not able to be identified at the time of this TIAR, and therefore project related trips were derived using the *ITE Trip Generation Manual*. The project is assumed to be completed by 2038 and resulting trips were included in the Future (2038) Without Project volumes.

6. Honua‘ula (Wailea 670)

Honua‘ula is proposing to include 1,150 residential units, with at least 288 affordable housing units, commercial and office space, and a small golf amenity. This project is in the permitting and entitlement stage and anticipating a 20-year buildout. The 2021-2026 project generated trips from the *2017 Honua‘ula TIAR* (SSFM, 2017) were assumed to be completed by 2038 and were included with the Future (2038) background volumes. The 2036 project generated trips from the *2017 Honua‘ula TIAR* were assumed to be completed by 2048 added to the Future (2048) volumes. As part of this project, several roadway and intersection improvements are proposed for construction and assumed to be completed by 2038, including:

- Widening of Pi‘ilani Highway between Kilohana Drive and Wailea Ike Drive;
- Intersection improvements at Pi‘ilani Highway at Wailea Ike Drive including signalization, construction of the north and east legs of the intersection, and a second right turn lane from Wailea Ike Drive to northbound Pi‘ilani Highway;
- Intersection improvements at Wailea Alanui Drive and Wailea Ike Drive, including two northbound right turn lanes and two southbound left turn lanes; and
- Signalization of Kaukahi Street when warranted.

As one of the 30 conditions mentioned in *Exhibit “B”*, Honua‘ula development is responsible for these improvements. *Exhibit “B”* can be found in Appendix C. Mākena Mauka is committed to assist in the costs of design and construction of the Pi‘ilani Highway Widening Project.

7. Proposed H-2 Residential Project

The Proposed H-2 Residential Project is expected to include up to 53 “single-family condominium lots.” The SMA permit application has been approved. The project is expected to be completed by 2038. Year 2028 traffic volumes from the *2022 Proposed H-2 Residential Project Final EA* were included in the Future (2038) volumes.

8. Mākena Ranches

The Mākena Ranches will include 36 agricultural lots, ranging in size from approximately four (4) acres to 95 acres, totaling approximately 666 acres. Portions of five (5) of these lots will be dedicated to dryland forest agricultural conservation area totaling approximately 103 acres. Agricultural farm plan area and conservation area, taken together will comprise approximately 89 percent of the area of the 36 lots. Additionally, the project includes seven (7) lots designated for roadway, pedestrian, or other uses (restricted uses), totaling approximately 116 acres. Construction for this project is ongoing. Residents are expected to begin moving in by 2028 with full occupancy spread out over 15 years. This project was not included in the COM project status viewer and therefore was not individually added to future year analysis and assumed to be captured in the background growth rate.

9. Wailea Golf Course Properties

Wailea Golf LLC proposes a planned, mixed-use development among 214 acres on TMK (2) 2-1-008:118, 134, and 140, to include a resort hotel with up to 1,070 housing units. The project will include up to 247 affordable housing units, 247 single-family market-value homes, and 576 multi-family market-value homes. 90% of the market value homes are assumed to be recreational homes, or second homes, which is in line with the percentages used for the Wailea Resort and Mākena Mauka developments. A traffic report detailing the project generated trips was not able to be identified at the time of this TIAR, and therefore project related trips were derived using the *ITE Trip Generation Manual*. The proposal for this project has been sent to the Maui Planning Commision for review and approval. For the purposes of our analysis, it was assumed that one-third of the project generated trips will be included in each of the future years of 2038, 2048, and 2058. The trip distribution assumed that about one-third of the project generated trips would be generated from each of the three TMK parcels. Project related trips were then distributed through the study intersections using the Existing (2024) traffic patterns.

10. ʻUlupalakua Ranch Renewable Energy Projects

The Paeahu Solar Project was previously proposed for development on 200 acres of ʻUlupalakua Ranch Land however the project is no longer proceeding. Since then, the Hawaiʻi State Energy Office announced plans for conducting a geothermal survey and there is potential for a future renewable energy project at ʻUlupalakua Ranch. The Paeahu Solar Project projected 2-4 daily staff to maintain operations. A renewable energy project is not expected to significantly increase traffic volume. Any project related trips from a renewable energy project at ʻUlupalakua Ranch is expected to be captured in the background growth rate.

B. Future Traffic Volumes

Future traffic volumes were projected by applying an ambient background growth in addition to trip volumes related to specific developments. Ambient background growth is associated with regional growth not attributed to a specific project. This growth also considers traffic associated with minor, or small, projects for which no traffic data, or traffic studies, are available. The second component is estimated traffic that will be generated by other major development projects in the vicinity of the proposed project. Included in the assessment of future background conditions are roadway improvements that are part of the related projects.

1. Background Growth

a) Historic HDOT Data

Historical 24-hour traffic data was collected from the HDOT. Changes in traffic volumes along roadways in the surrounding area over the past five years have been mixed, as shown in Table 1. Historic HDOT traffic patterns do not show any traffic growth in the area from 2016-2024, even when removing the Covid-19 pandemic years (2019 and 2020) and the Lahaina Fire (2023) volumes from the calculation.

b) Maui Long Range Transportation Plan

The *Federal-Aid Highways 2035 Transportation Plan for the District of Maui* (HDOT, 2014) daily vehicle trip projections for South Kihei in 2020 and 2025 would result in an annual growth rate of 1.52%.

c) Surrounding Area Projects

Various traffic reports in the area were reviewed for consistency in future forecasting and assumptions. The growth rates used in those reports ranged from 0% to 3.6%, referring to historic HDOT data trends, nearby master plans, and the Maui Travel Demand Forecasting Model.

d) Annual Growth Rate

A 1.52% compound annual growth rate over 34 years, from 2024 to 2058, would result in a 67% increase in traffic volume. However, the historic HDOT traffic volumes over the past nine years, from 2016-2024, do not reflect changes. With recent traffic volumes resulting in no growth but future models still projecting increases in the area, a 1.0% annual growth rate is assumed to be appropriate for this project's future analysis that extends through 2058. This 1.0% compound annual growth rate was applied to all major regional movements at all study intersections.

2. Future Without Project Volumes

The future without project volumes were calculated by applying the 1% background growth to the existing volumes and adding the trips generated from future surrounding area developments. Future Without Project volumes for the Years 2038, 2048 and 2058 are shown in Figures 10-12, respectively.

3. Future Without Project Lane Configurations

With the inclusion of the Honua'ula development, it was assumed that the Pi'ilani Highway and Wailea Ike Drive intersection would be reconstructed. The lane configuration in the *2017 Honua'ula TIAR* was used for analysis. Changes to this intersection will also include the widening of Pi'ilani Highway from two lanes to four lanes. Pi'ilani Highway at Kilohana Drive/Mapu Drive and at Okolani Drive/Mikioi Place were analyzed with four travel lanes, using lane configurations outlined in the *2017 Honua'ula TIAR.* The *2017 Honua'ula TIAR* also included improvements at Wailea Alanui Drive and Wailea Ike Drive and at Wailea Alanui Drive and Makena Alanui Drive at Kaukahi Street when needed. The Wailea Alanui Drive and Wailea Ike Drive and at Wailea Alanui Drive/Makena Alanui Drive at Kaukahi Street intersections will be analyzed using existing lane configuration.

4. Future Without Project Signal Timing and Phasing

All signalized study intersections were observed to have varying cycle lengths, suggesting uncoordinated and fully actuated signal timing. As a part of future analysis, signal timing was optimized at all signalized intersections.

The Pi'ilani Highway at Wailea Ike Drive is expected to have protected northbound and southbound left turns. The westbound and eastbound approaches will operate with split phasing. The westbound right turn

was analyzed with “permitted+overlap” traffic signal phasing, overlapping with the protected southbound left turn phase, to provide more green time for the westbound right turn movement.

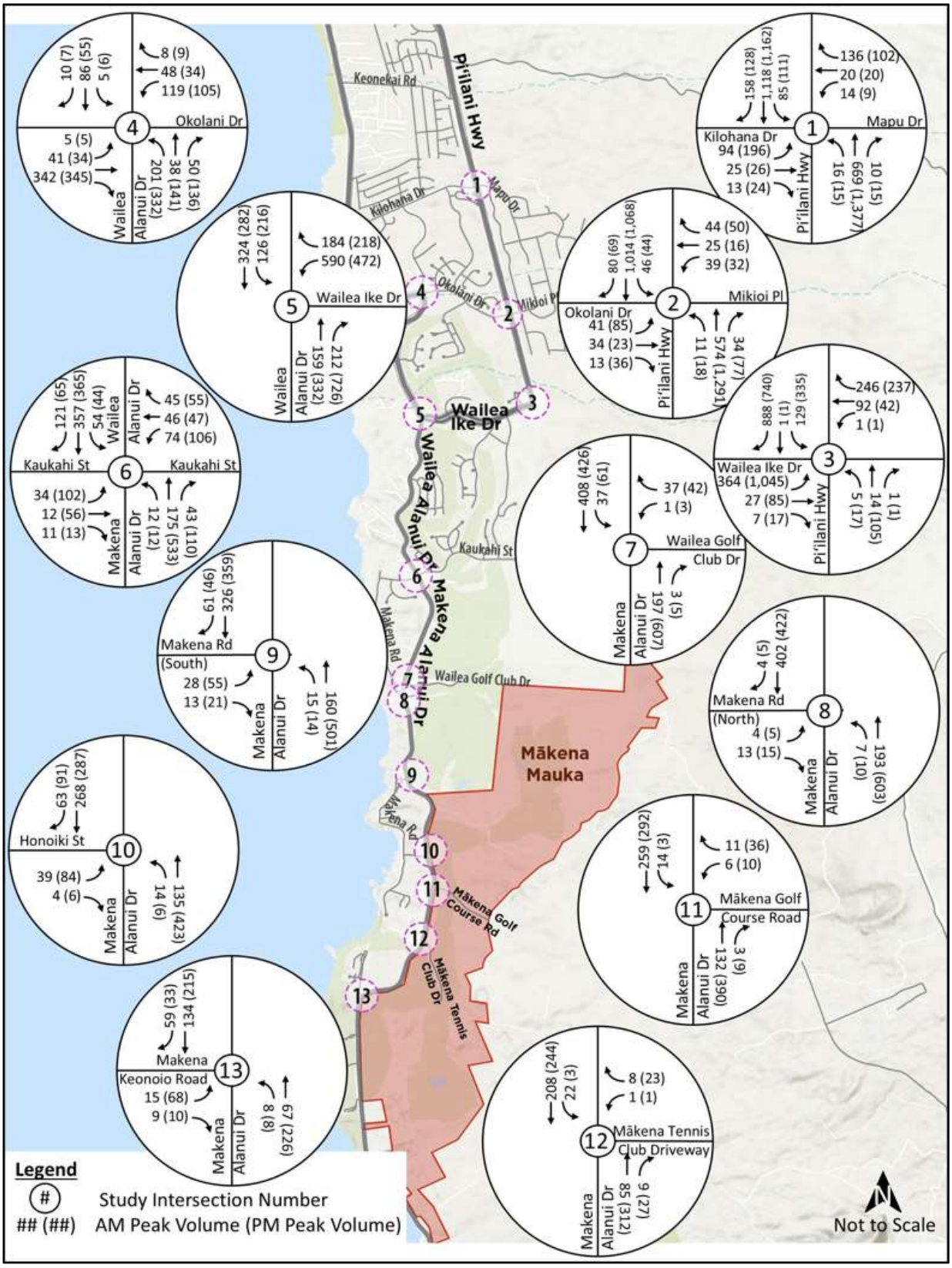

Figure 10: Future (2038) Without Project Peak Hour Volumes

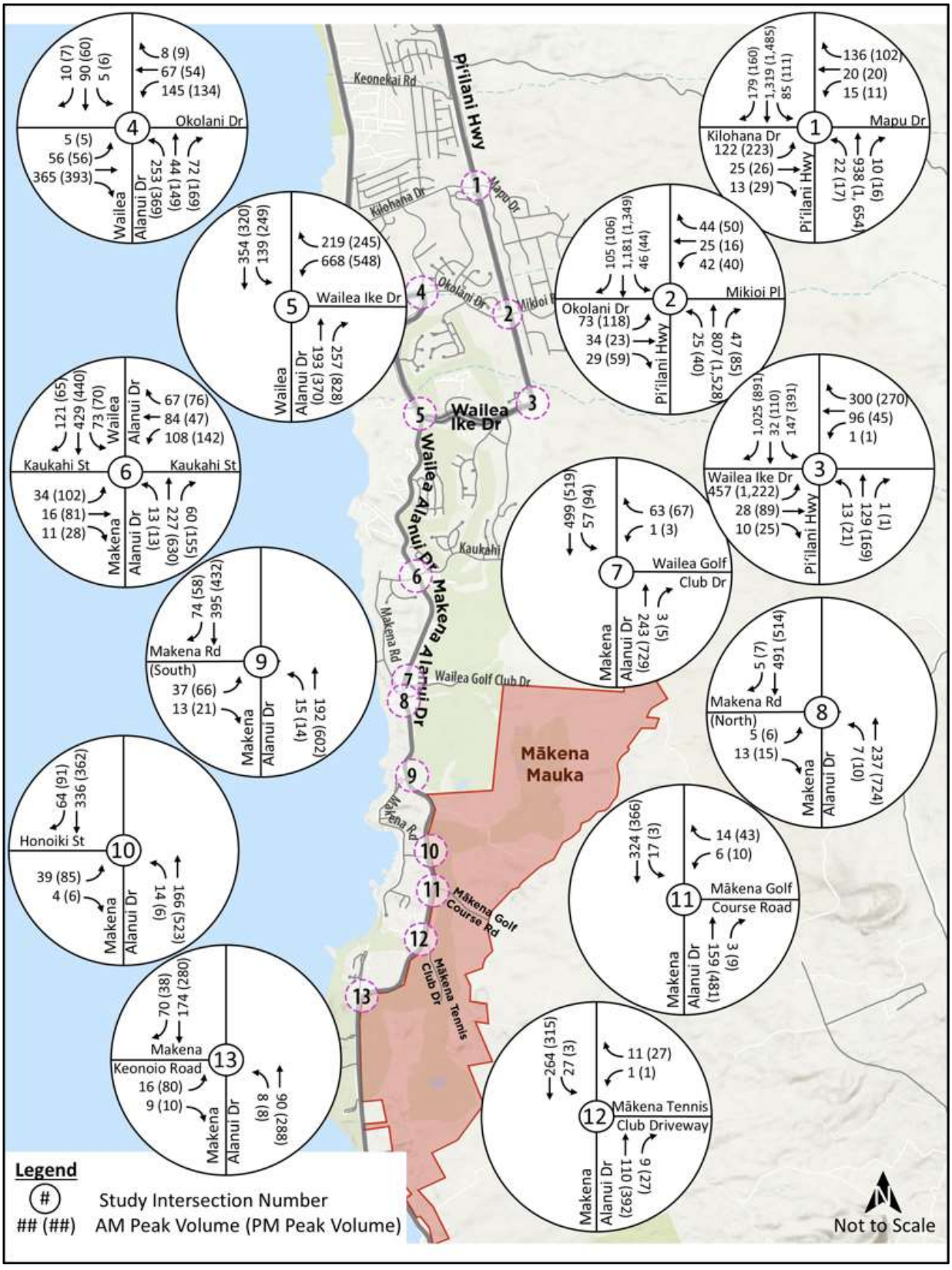

Figure 11: Future (2048) Without Project Peak Hour Volumes

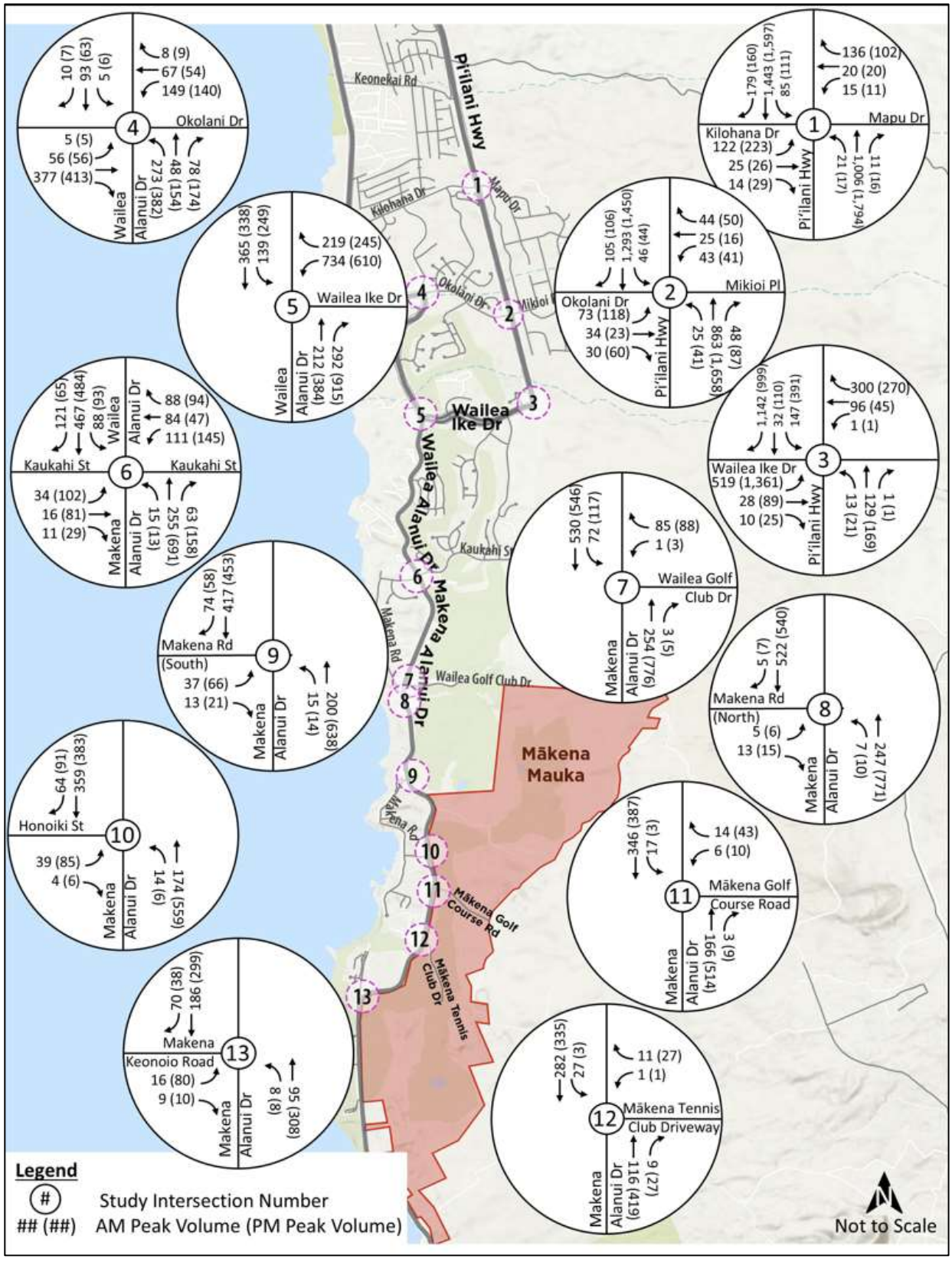

Figure 12: Future (2058) Without Project Peak Hour Volumes

C. Future (2038) Without Project LOS

Future (2038) Without Project intersection LOS, v/c ratio and delay were determined for the AM and PM peak hours (see Table 8 and 9). Intersections and individual movements that operate at LOS E or worse are highlighted in yellow. Future (2038) Without Project Synchro worksheets can be found in Appendix D.

Table 8: Future (2038) Without Project Intersection Level of Service

Future (2038) Without Project	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
1 - Pi'ilani Hwy & Kilohana Dr/Mapu Dr	**A**	**9.6**	**-**	**B**	**15.6**	**-**
Pi'ilani NB Left	D	35.2	0.45	D	43.8	0.47
Pi'ilani NB Through	A	7.0	0.35	B	15.1	0.74
Pi'ilani NB Right	A	5.3	0.01	A	7.7	0.02
Pi'ilani SB Left	C	33.0	0.73	D	53.0	0.79
Pi'ilani SB Through	A	7.1	0.53	A	9.6	0.56
Kilohana EB Left	C	24.4	0.36	C	29.2	0.58
Kilohana EB Through-Right	C	22.9	0.15	C	24.4	0.09
Mapu WB Left-Through	C	22.9	0.14	C	24.4	0.08
2 - Pi'ilani Hwy & Okolani Dr/Mikioi Place	**A**	**9.0**	**-**	**A**	**9.6**	**-**
Pi'ilani NB Left	C	28.0	0.43	C	28.6	0.45
Pi'ilani NB Through	A	7.7	0.41	A	9.7	0.75
Pi'ilani SB Left	C	20.5	0.50	C	25.2	0.53
Pi'ilani SB Through	A	8.2	0.66	A	7.2	0.59
Okolani EB Left	B	14.2	0.11	B	19.3	0.29
Okolani EB Through-Right	B	14.3	0.16	B	18.4	0.13
Mikioi WB Left-Through	B	14.5	0.19	B	18.6	0.17
3 - Pi'ilani Hwy & Wailea Ike Drive	**B**	**16.9**	**-**	**C**	**28.2**	**-**
Pi'ilani NB Left	D	43.0	0.42	D	40.3	0.47
Pi'ilani NB Through-Right	B	17.3	0.04	C	30.5	0.41
Pi'ilani SB Left	B	19.6	0.43	D	43.5	0.86
Pi'ilani SB Through	B	13.9	0.00	C	21.9	0.00
Wailea Ike EB Double Left	B	17.6	0.63	C	26.1	0.89
Wailea Ike EB Through-Right	B	15.1	0.11	B	13.8	0.16
Wailea Ike WB Left-Through	B	17.3	0.35	C	26.2	0.21
Wailea Ike WB Double Right	B	14.1	0.39	C	20.8	0.38
4 - Wailea Alanui Dr & Okolani Dr	**C**	**15.3**	**-**	**D**	**26.0**	**-**
Wailea Alanui NB Left	C	16.3	0.45	E	39.4	0.83
Wailea Alanui NB Through	B	10.3	0.08	B	13.6	0.34
Wailea Alanui NB Right	A	9.7	0.09	B	12.0	0.29
Wailea Alanui SB Left-Through	B	12.3	0.21	B	13.6	0.18
Wailea Alanui SB Right	A	9.7	0.02	B	11.0	0.02
Okolani EB Left	A	10.0	0.01	B	11.1	0.01
Okolani EB Through	B	10.1	0.08	B	11.3	0.09
Okolani EB Right	C	18.2	0.62	D	31.7	0.79
Okolani WB Left-Through	B	14.8	0.38	C	17.4	0.40
Okolani WB Right	A	9.3	0.02	B	10.7	0.02

Table 9: Future (2038) Without Project Intersection Level of Service (cont.)

Future (2038) Without Project	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
5 - Wailea Alanui Dr & Wailea Ike Dr	**D**	**40.6**	-	**D**	**40.2**	-
Wailea Alanui NB Through	B	18.8	0.25	C	30.1	0.64
Wailea Alanui SB Left	E	72.7	0.87	E	62.2	0.89
Wailea Alanui SB Through	B	10.8	0.19	A	10.0	0.17
Wailea Ike WB Left	E	56.0	0.98	E	55.2	0.95
6 - Wailea Alanui Dr & Kaukahi St	-	**4.7**	-	-	**29.2**	-
Makena Alanui NB Left-Through	A	8.1	0.01	A	8.1	0.01
Wailea Alanui SB Left	A	7.7	0.04	A	8.7	0.05
Kaukahi EB Left-Through-Right	C	18.7	0.19	F	121.5	1.01
Kaukahi WB Left-Through	C	23.6	0.40	F	136.8	1.03
7 - Makena Alanui Dr & Wailea Golf Course Dr	-	**0.9**	-	-	**1.0**	-
Wailea Alanui SB Left	A	7.7	0.03	A	9.3	0.07
Wailea Golf Course WB Left	B	14.6	0.00	D	27.3	0.02
Wailea Golf Course WB Right	A	9.6	0.05	B	14.0	0.10
8 - Makena Alanui Dr & Makena Rd (North)	-	**0.4**	-	-	**0.3**	-
Makena Alanui NB Left	A	8.2	0.007	A	8.5	0.011
Makena Rd (North) EB Left-Right	B	11.7	0.033	C	15.3	0.064
9 - Makena Alanui Dr & Makena Rd (South)	-	**1.1**	-	-	**1.9**	-
Makena Alanui NB Left-Through	A	8.2	0.01	A	8.4	0.02
Makena Rd (South) EB Left-Right	B	12.6	0.08	C	23.0	0.31
10 - Makena Alanui Dr & Honoiki St	-	**1.3**	-	-	**2.3**	-
Makena Alanui NB Left-Through	A	8.2	0.01	A	8.2	0.01
Honoiki EB Left-Right	B	13.0	0.10	C	22.1	0.34
11 - Makena Alanui Dr & Mākena Golf Course Dwy	-	**0.7**	-	-	**0.9**	-
Makena Alanui SB Left-Through	A	7.6	0.01	A	8.4	0.01
Makena Golf Course WB Left-Right	B	10.2	0.03	B	13.1	0.11
12 - Makena Alanui Dr & Mākena Tennis Club Dwy	-	**0.7**	-	-	**0.5**	-
Makena Alanui SB L-T	A	7.5	0.02	A	8.2	0.01
Makena Tennis Club WB L-R	A	9.1	0.01	B	11.0	0.05
13 - Makena Alanui Dr & Makena Keonoio Rd	-	**1.0**	-	-	**2.1**	-
Makena Alanui NB L-T	A	7.7	0.01	A	7.9	0.01
Makena Keonoio EB L-R	B	10.1	0.04	C	14.2	0.20

1. Pi‘ilani Highway at Kilohana Drive/Mapu Drive

Pi‘ilani Highway at Kilohana Drive/Mapu Drive is projected to operate at LOS A and LOS B during the AM and PM peak hours, respectively. All movements operate at LOS D or better. No improvements are needed or recommended at this intersection.

2. Pi‘ilani Highway at Okolani Drive/Mikioi Place

This intersection operates at LOS A during the AM and PM peak hours. All movements operate at LOS C or better. No improvements are needed or recommended at this intersection.

3. Pi'ilani Highway at Wailea Ike Drive

This intersection operates at LOS B and LOS C during the AM and PM peak hours, respectively. All movements operate at LOS D or better. No improvements are needed or recommended at this intersection.

4. Wailea Alanui Drive at Okolani Drive

This intersection operates at LOS C and LOS D during the AM and PM peak hours, respectively. The northbound left turn operates at LOS E (v/c of 0.83). The delay is only limited to the PM peak hour with a v/c under 0.85. This intersection will not pass an 8-hour or 4-hour traffic signal warrant. The v/c is not a critical level (above 0.85) that will require mitigation. No improvements are needed or recommended at this intersection.

5. Wailea Alanui Drive at Wailea Ike Drive

This intersection will operate at LOS D during the AM and PM peak hours. The southbound left turns and westbound left turns are projected to operate at LOS E, with a v/c over 0.85 during the AM and PM peak hours.

Signal timing adjustments were not able to improve the southbound left turn during the PM peak hour. The *2017 Honua'ula TIAR* recommended adding a second westbound left turn lane and a second northbound right turn lane. Therefore, Wailea Alanui Drive at Wailea Ike Drive was analyzed with the additional westbound left turn lane and northbound right turn lane (see Table 10). The cycle length was increased to allow for the longer pedestrian crossings due to the additional travel lanes.

This change did not change the southbound left turn geometry however, it does provide the two heavy movements at this intersection with additional capacity, which in turn allows for the signal timing to be adjusted. The intersection operates at LOS C during the Future (2038) Without Project AM and PM peak hours, and all movements will operate at LOS D or better. It is recommended that the second westbound left turn and the second northbound right turn be added in Future (2038) Without Project.

Table 10: Future (2038) Without Project Mitigation at Wailea Alanui Dr & Wailea Ike Dr

Existing Lane Configuration	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
5 - Wailea Alanui Dr & Wailea Ike Dr	**D**	**40.6**	**-**	**D**	**40.2**	**-**
Wailea Alanui NB Through	B	18.8	0.25	C	30.1	0.64
Wailea Alanui SB Left	E	72.7	0.87	E	62.2	0.89
Wailea Alanui SB Through	B	10.8	0.19	A	10.0	0.17
Wailea Ike WB Left	E	56.0	0.98	E	55.2	0.95
Dual NB Right Turn and WB Left Turn Lanes	**AM Peak**			**PM Peak**		
	LOS	**Delay**	**v/c**	**LOS**	**Delay**	**v/c**
5 - Wailea Alanui Dr & Wailea Ike Dr	**C**	**24.7**	**-**	**C**	**27.4**	**-**
Wailea Alanui NB Through	B	12.0	0.18	B	18.1	0.46
Wailea Alanui SB Left	D	46.0	0.79	D	46.5	0.86
Wailea Alanui SB Through	A	5.6	0.15	A	4.9	0.14
Wailea Ike WB Double Left	C	34.1	0.82	D	38.8	0.83

6. Wailea Alanui Drive/Makena Alanui Drive at Kaukahi Street

The Kaukahi Street approaches will operate at LOS F during the PM peak hour. The v/c for both approaches are greater than 1.00. Drivers are expected to have difficulty making turns from Kaukahi Street during the PM peak hour. Improvements to the intersection will be analyzed.

The *2017 Honua'ula TIAR* recommended the intersection be signalized in 2026. This intersection will not pass the 8-Hour or 4-Hour Vehicle (traffic signal) Warrant but will pass the Peak Hour Vehicle Warrant. However, it should be noted that the satisfaction of a warrant does not necessarily justify installing a traffic signal. The traffic signal warrant analysis can be found in Appendix E.

Wailea Alanui Drive/Makena Alanui Drive at Kaukahi Street was analyzed in Synchro 11 as a signalized intersection with permitted phases for all movements (see Table 11). The intersection operates at LOS A during the Future (2038) Without Project AM and PM peak hours, and all movements will operate at LOS B or better.

Table 11: Future (2038) Without Project Mitigation at Wailea Alanui Dr & Kaukahi St

Existing TWSC	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
6 - Wailea Alanui Dr & Kaukahi St	**-**	**4.7**	**-**	**-**	**29.2**	**-**
Makena Alanui NB Left-Through	A	8.1	0.01	A	8.1	0.01
Wailea Alanui SB Left	A	7.7	0.04	A	8.7	0.05
Kaukahi EB Left-Through-Right	C	18.7	0.19	F	121.5	1.01
Kaukahi WB Left-Through	C	23.6	0.40	F	136.8	1.03
Signalized Intersection	**AM Peak**			**PM Peak**		
	LOS	**Delay**	**v/c**	**LOS**	**Delay**	**v/c**
6 - Wailea Alanui Dr & Kaukahi St	**A**	**6.6**	**-**	**A**	**7.0**	**-**
Makena Alanui NB Left-Through	A	5.5	0.25	A	6.4	0.59
Wailea Alanui SB Left	A	5.0	0.07	A	4.3	0.07
Wailea Alanui SB Through	A	6.8	0.58	A	5.5	0.46
Kaukahi EB Left-Through-Right	A	7.4	0.08	B	10.2	0.32
Kaukahi WB Left-Through	A	7.9	0.22	B	10.2	0.31

7. Makena Alanui Drive at Wailea Golf Course Drive

All movements operate at LOS D or better for both peak hours.

8. Makena Alanui Drive at Makena Road (North)

All movements operate at LOS C or better for both peak hours.

9. Makena Alanui Drive at Makena Road (South)

All movements operate at LOS C or better for both peak hours.

10. Makena Alanui Drive at Honoiki Street

All movements operate at LOS C or better for both peak hours.

11. Makena Alanui Drive at Future Mākena Golf Course Driveway

All movements operate at LOS B or better for both peak hours.

12. Makena Alanui Drive at Mākena Tennis Club Driveway

All movements operate at LOS B or better for both peak hours.

13. Makena Alanui Drive at Makena Keonoio Road

All movements operate at LOS C or better for both peak hours.

D. Future (2038) Without Project Recommendation

It is recommended that a second westbound left turn and a second northbound right turn be added at Wailea Alanui Drive and Wailea Ike Drive in Future (2038) Without Project. The cycle length and pedestrian phases should be modified to account for the longer pedestrian crossing distances and times. This intersection will be analyzed in the future condition with these improvements.

It is recommended that the Wailea Alanui Drive/Makena Alanui Drive and Kaukahi Street intersection be signalized when traffic volumes meet traffic signal warrant thresholds and when traffic analysis determines a signal is needed as recommended in the *Honua'ula TIAR*. This intersection will be analyzed in the remaining future conditions as a signalized intersection.

E. Future (2048) Without Project LOS

In addition to the Future (2038) Without Project mitigation improvements, the traffic signals at all signalized intersections were optimized. Future (2048) Without Project intersection LOS, delay, and v/c were determined for the AM and PM peak hours (see Table 12 and 13). Intersections and individual movements that operate at LOS E or worse are highlighted in yellow. Future (2048) Without Project Synchro worksheets can be found in Appendix D.

Table 12: Future (2048) Without Project Intersection Level of Service

Future (2048) Without Project	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
1 - Pi'ilani Hwy & Kilohana Dr/Mapu Dr	**B**	**11.2**	**-**	**B**	**19.9**	**-**
Pi'ilani NB Left	C	34.2	0.48	D	50.7	0.49
Pi'ilani NB Through	A	8.8	0.50	B	19.6	0.84
Pi'ilani NB Right	A	5.8	0.01	A	8.0	0.02
Pi'ilani SB Left	C	34.5	0.74	F	84.0	0.88
Pi'ilani SB Through	A	9.3	0.65	B	12.5	0.69
Kilohana EB Left	C	24.7	0.42	C	35.0	0.65
Kilohana EB Through-Right	C	22.4	0.12	C	28.2	0.08
Mapu WB Left-Through	C	22.4	0.12	C	28.3	0.08
2 - Pi'ilani Hwy & Okolani Dr/Mikioi Place	**B**	**10.0**	**-**	**B**	**12.1**	**-**
Pi'ilani NB Left	C	24.5	0.46	C	30.3	0.54
Pi'ilani NB Through	A	8.1	0.52	B	12.0	0.82
Pi'ilani SB Left	C	22.5	0.52	C	30.2	0.55
Pi'ilani SB Through	A	9.6	0.73	A	9.7	0.72
Okolani EB Left	B	16.0	0.20	C	23.1	0.40
Okolani EB Through-Right	B	15.7	0.15	C	21.1	0.11
Mikioi WB Left-Through	B	16.0	0.20	C	21.6	0.20
3 - Pi'ilani Hwy & Wailea Ike Drive	**B**	**18.2**	**-**	**C**	**33.5**	**-**
Pi'ilani NB Left	C	32.7	0.44	D	51.5	0.53
Pi'ilani NB Through-Right	C	21.1	0.37	D	43.5	0.63
Pi'ilani SB Left	C	21.9	0.50	D	49.2	0.85
Pi'ilani SB Through	B	16.5	0.10	C	30.3	0.32
Wailea Ike EB Double Left	B	18.3	0.67	C	30.2	0.90
Wailea Ike EB Through-Right	B	15.2	0.11	B	15.5	0.16
Wailea Ike WB Left-Through	B	18.0	0.33	D	35.2	0.22
Wailea Ike WB Double Right	B	15.2	0.45	C	26.7	0.40
4 - Wailea Alanui Dr & Okolani Dr	**C**	**20.2**	**-**	**E**	**49.9**	**-**
Wailea Alanui NB Left	C	22.6	0.61	F	84.5	1.02
Wailea Alanui NB Through	B	11.1	0.10	C	16.0	0.39
Wailea Alanui NB Right	B	10.7	0.15	C	15.1	0.41
Wailea Alanui SB Left-Through	B	13.7	0.24	C	15.7	0.22
Wailea Alanui SB Right	B	10.6	0.02	B	12.3	0.02
Okolani EB Left	B	10.7	0.01	B	12.0	0.02
Okolani EB Through	B	11.2	0.13	B	12.9	0.16
Okolani EB Right	D	25.6	0.73	F	69.7	1.00
Okolani WB Left-Through	C	19.4	0.52	D	25.5	0.59
Okolani WB Right	A	9.9	0.02	B	11.6	0.03

Table 13: Future (2048) Without Project Intersection Level of Service (cont.)

Future (2048) Without Project	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
5 - Wailea Alanui Dr & Wailea Ike Dr	**C**	**25.9**	**-**	**C**	**30.6**	**-**
Wailea Alanui NB Through	B	14.1	0.23	C	23.1	0.56
Wailea Alanui SB Left	D	46.8	0.80	D	50.3	0.88
Wailea Alanui SB Through	A	6.6	0.17	A	5.9	0.16
Wailea Ike WB Double Left	D	35.2	0.84	D	41.2	0.86
6 - Wailea Alanui Dr & Kaukahi St	**A**	**7.4**	**-**	**A**	**7.8**	**-**
Makena Alanui NB Left-Through	A	6.1	0.30	A	7.0	0.66
Wailea Alanui SB Left	A	5.3	0.10	A	4.6	0.12
Wailea Alanui SB Through	A	7.7	0.64	A	5.8	0.50
Kaukahi EB Left-Through-Right	A	8.0	0.09	B	12.0	0.38
Kaukahi WB Left-Through	A	9.1	0.35	B	12.1	0.39
7 - Makena Alanui Dr & Wailea Golf Course Dr	**-**	**1.3**	**-**	**-**	**1.6**	**-**
Wailea Alanui SB Left	A	7.9	0.05	B	10.1	0.13
Wailea Golf Course WB Left	C	17.6	0.00	E	42.6	0.03
Wailea Golf Course WB Right	B	10.1	0.09	C	17.1	0.20
8 - Makena Alanui Dr & Makena Rd (North)	**-**	**0.4**	**-**	**-**	**0.4**	**-**
Makena Alanui NB Left	A	8.5	0.01	A	8.8	0.01
Makena Rd (North) EB Left-Right	B	13.0	0.04	C	19.6	0.09
9 - Makena Alanui Dr & Makena Rd (South)	**-**	**1.2**	**-**	**-**	**2.8**	**-**
Makena Alanui NB Left-Through	A	8.4	0.02	A	8.7	0.02
Makena Rd (South) EB Left-Right	B	14.3	0.12	E	37.2	0.49
10 - Makena Alanui Dr & Honoiki St	**-**	**1.2**	**-**	**-**	**2.7**	**-**
Makena Alanui NB Left-Through	A	8.4	0.02	A	8.5	0.01
Honoiki EB Left-Right	B	14.5	0.12	D	31.5	0.45
11 - Makena Alanui Dr & Mākena Golf Course Dwy	**-**	**0.7**	**-**	**-**	**0.9**	**-**
Makena Alanui SB Left-Through	A	7.7	0.02	A	8.7	0.01
Makena Golf Course WB Left-Right	B	10.6	0.04	C	15.0	0.15
12 - Makena Alanui Dr & Mākena Tennis Club Dwy	**-**	**0.7**	**-**	**-**	**0.5**	**-**
Makena Alanui SB L-T	A	7.5	0.02	A	8.5	0.01
Makena Tennis Club WB L-R	A	9.2	0.02	B	12.0	0.06
13 - Makena Alanui Dr & Makena Keonoio Rd	**-**	**0.9**	**-**	**-**	**2.4**	**-**
Makena Alanui NB L-T	A	7.9	0.01	A	8.1	0.01
Makena Keonoio EB L-R	B	10.7	0.05	C	17.8	0.29

1. Pi‘ilani Highway at Kilohana Drive/Mapu Drive

Pi‘ilani Highway at Kilohana Drive/Mapu Drive is projected to operate at LOS B during the AM and PM peak hours. The southbound left turn is projected to operate at LOS F (v/c of 0.88) during the PM peak hour. The southbound left turn volume is 111 vph, or about two (2) vehicles per minute. This movement is expected to clear the intersection every cycle. No improvements are needed or recommended at this intersection.

2. Pi‘ilani Highway at Okolani Drive/Mikioi Place

This intersection operates at LOS B during the AM and PM peak hours. All movements operate at LOS C or better. No improvements are needed or recommended at this intersection.

3. Pi'ilani Highway at Wailea Ike Drive

This intersection operates at LOS B and LOS C during the AM and PM peak hours, respectively. All movements operate at LOS D or better. No improvements are needed or recommended at this intersection.

4. Wailea Alanui Drive at Okolani Drive

This intersection will operate at LOS C and LOS E during the AM and PM peak hours. The northbound left turn and eastbound right turn lane will operate at LOS F (v/c of 1.02 and 1.00, respectively) during the PM peak hour. The delay is due to the high traffic volume (369 vph for the northbound left, 393 vph for the eastbound right) and the AWSC.

The traffic volume at this intersection is too low to pass a traffic signal vehicle warrant. This intersection was analyzed as a TWSC and as a single lane roundabout (see Table 14).

Table 14: Future (2048) Without Project Mitigation at Wailea Alanui Dr & Okolani Dr

NB & SB Stop Control	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
4 - Wailea Alanui Dr & Okolani Dr	-	**30.9**	-	-	**51.1**	-
Wailea Alanui NB Left	F	76.0	0.94	F	123.3	1.14
Wailea Alanui NB Through	B	14.8	0.12	C	18.4	0.40
Wailea Alanui NB Right	A	8.9	0.08	A	9.5	0.02
Wailea Alanui SB Left-Through	C	16.7	0.25	C	15.9	0.19
Wailea Alanui SB Right	A	9.6	0.01	A	8.7	0.01
Okolani EB Left	A	7.5	0.01	A	7.4	0.01
Okolani WB Left-Through	A	7.6	0.10	A	7.6	0.10
EB & WB Stop Control	**AM Peak**			**PM Peak**		
	LOS	Delay	v/c	LOS	Delay	v/c
4 - Wailea Alanui Dr & Okolani Dr	-	**34.1**	-	-	**129.4**	-
Wailea Alanui NB Left	A	8.5	0.21	A	8.3	0.29
Wailea Alanui SB Left-Through	A	7.3	0.01	A	7.6	0.01
Okolani EB Left	D	27.4	0.03	E	49.9	0.07
Okolani EB Through	C	24.9	0.25	E	50.6	0.46
Okolani WB Left-Through	F	103.7	1.00	F	667.0	2.26
Okolani WB Right	A	8.8	0.01	A	9.2	0.01
Single Lane Roundabout	**AM Peak**			**PM Peak**		
	LOS	Delay	v/c	LOS	Delay	v/c
4 - Wailea Alanui Dr & Okolani Dr	**A**	**6.9**	-	**B**	**10.1**	-
Wailea Alanui NB Approach	A	5.8	0.32	B	11.3	0.65
Wailea Alanui SB Approach	A	5.9	0.14	A	6.6	0.13
Okolani EB Approach	A	8.5	0.45	A	9.3	0.50
Okolani WB Approach	A	6.2	0.25	A	9.1	0.33

As a TWSC, the delay would worsen with multiple movements operating at LOS E or worse. As a single lane roundabout, all movements at this intersection are projected to operate at LOS B or better.

The *2025 Ledcor Wailea Projects Final EIS* identifies the northbound left turn and eastbound right turns as movements that operate at LOS E or worse. The *2025 Ledcor Wailea Projects Final EIS* recommends a traffic signal or a roundabout as potential mitigation for this intersection in 2042.

5. Wailea Alanui Drive at Wailea Ike Drive

This intersection operates at LOS C during the AM and PM peak hours. All movements operate at LOS D or better. No improvements are needed or recommended at this intersection.

6. Wailea Alanui Drive/Makena Alanui Drive at Kaukahi Street

This intersection operates at LOS A during the AM and PM peak hours. All movements operate at LOS B or better. No improvements are needed or recommended at this intersection.

7. Makena Alanui Drive at Wailea Golf Course Drive

The westbound left turn operates at LOS E (v/c of 0.03) during the PM peak hour. The westbound left turn volume is 3 vph. The volume on the minor street approach is too low to satisfy an AWSC or traffic signal vehicle warrant. The v/c is not a critical level (above 0.85) that will require mitigation. It is recommended this intersection remain a TWSC intersection.

8. Makena Alanui Drive at Makena Road (North)

All movements operate at LOS C or better for both peak hours.

9. Makena Alanui Drive at Makena Road (South)

The Makena Road (South) eastbound approach will operate at LOS E (v/c of 0.49) during the PM peak hour. The eastbound approach volume is 87 vph during the PM peak hour.

An AWSC warrant, Warrant D: 8-Hour Volume (vehicles, pedestrians, and bicycles), was analyzed. Two conditions must be satisfied to pass this warrant:

- The total number of vehicles, pedestrians and bicycles on the major approach street is at least 300 units per hour for any 8 hours in a day and
- The total number of vehicles, pedestrians and bicycles on the minor street approach is at least 200 units per hour for the same 8 hours.

The volume on the minor street approach is too low to satisfy an AWSC or traffic signal vehicle warrant. The v/c is not a critical level (above 0.85) that will require mitigation. It is recommended this intersection remain a TWSC intersection.

10. Makena Alanui Drive at Honoiki Street

All movements operate at LOS D or better for both peak hours.

11. Makena Alanui Drive at Future Mākena Golf Course Driveway

All movements operate at LOS C or better for both peak hours.

12. Makena Alanui Drive at Mākena Tennis Club Driveway

All movements operate at LOS B or better for both peak hours.

13. Makena Alanui Drive at Makena Keonoio Road

All movements operate at LOS C or better for both peak hours.

F. Future (2048) Without Project Recommendation

It is recommended that a single lane roundabout be considered at Wailea Alanui Drive and Okolani Drive in Future (2048) Without Project. Future Without Project conditions will analyze this intersection as a single lane roundabout.

G. Future (2058) Without Project LOS

Future (2058) Without Project intersection LOS, v/c ratio and delay were determined for the AM and PM peak hours (see Table 15 and 16). The results for the Future (2058) Without Project conditions were similar to Future (2048) Without Project conditions, with worsening conditions. Intersections and individual movements that operate at LOS E or worse are highlighted in yellow. Future (2058) Without Project Synchro worksheets can be found in Appendix D.

Table 15: Future (2058) Without Project Intersection

Future (2058) Without Project	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
1 - Pi'ilani Hwy & Kilohana Dr/Mapu Dr	**B**	**11.6**	**-**	**C**	**22.3**	**-**
Pi'ilani NB Left	D	35.0	0.48	D	50.7	0.49
Pi'ilani NB Through	A	9.0	0.52	C	24.3	0.91
Pi'ilani NB Right	A	5.7	0.01	A	8.0	0.02
Pi'ilani SB Left	D	35.8	0.75	F	84.0	0.88
Pi'ilani SB Through	B	10.1	0.70	B	13.7	0.74
Kilohana EB Left	C	25.4	0.43	C	35.0	0.65
Kilohana EB Through-Right	C	23.0	0.12	C	28.2	0.08
Mapu WB Left-Through	C	23.0	0.12	C	28.3	0.08
2 - Pi'ilani Hwy & Okolani Dr/Mikioi Place	**B**	**10.5**	**-**	**B**	**12.1**	**-**
Pi'ilani NB Left	C	25.2	0.47	D	35.6	0.57
Pi'ilani NB Through	A	8.1	0.54	B	11.6	0.82
Pi'ilani SB Left	C	23.3	0.52	D	35.6	0.58
Pi'ilani SB Through	B	10.5	0.77	A	9.3	0.71
Okolani EB Left	B	16.7	0.21	C	27.4	0.44
Okolani EB Through-Right	B	16.3	0.16	C	25.0	0.12
Mikioi WB Left-Through	B	16.7	0.21	C	25.7	0.22
3 - Pi'ilani Hwy & Wailea Ike Drive	**B**	**18.7**	**-**	**D**	**37.5**	**-**
Pi'ilani NB Left	C	33.6	0.44	E	58.2	0.55
Pi'ilani NB Through-Right	C	22.1	0.38	D	49.7	0.66
Pi'ilani SB Left	C	22.8	0.52	E	57.4	0.87
Pi'ilani SB Through	B	17.4	0.11	C	34.8	0.33
Wailea Ike EB Double Left	B	18.3	0.69	C	33.3	0.92
Wailea Ike EB Through-Right	B	14.8	0.10	B	15.3	0.15
Wailea Ike WB Left-Through	B	18.8	0.33	D	40.2	0.23
Wailea Ike WB Double Right	B	15.9	0.45	C	30.9	0.41
4 - Wailea Alanui Dr & Okolani Dr	**A**	**7.3**	**-**	**B**	**10.7**	**-**
Wailea Alanui NB approach	A	6.1	0.35	B	11.9	0.67
Wailea Alanui SB approach	A	6.2	0.15	A	6.8	0.13
Okolani EB approach	A	9.0	0.47	A	9.9	0.53
Okolani WB approach	A	6.5	0.26	A	9.5	0.34
5 - Wailea Alanui Dr & Wailea Ike Dr	**C**	**26.0**	**-**	**C**	**32.4**	**-**
Wailea Alanui NB Through	B	15.6	0.27	C	25.6	0.60
Wailea Alanui SB Left	D	46.9	0.80	D	54.2	0.89
Wailea Alanui SB Through	A	7.5	0.18	A	6.7	0.18
Wailea Ike WB Double Left	C	34.3	0.85	D	42.0	0.87

Table 16: Future (2058) Without Project Intersection (cont.)

Future (2058) Without Project	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
6 - Wailea Alanui Dr & Kaukahi St	**A**	**7.5**	**-**	**A**	**8.1**	**-**
Makena Alanui NB Left-Through	A	6.1	0.33	A	7.2	0.69
Wailea Alanui SB Left	A	5.3	0.12	A	4.7	0.17
Wailea Alanui SB Through	A	7.8	0.67	A	5.8	0.52
Kaukahi EB Left-Through-Right	A	8.4	0.09	B	13.3	0.40
Kaukahi WB Left-Through	A	9.6	0.36	B	13.5	0.42
7 - Makena Alanui Dr & Wailea Golf Course Dr	**-**	**1.6**	**-**	**-**	**2.0**	**-**
Wailea Alanui SB Left	A	8.0	0.06	B	10.6	0.17
Wailea Golf Course WB Left	C	19.2	0.00	F	53.2	0.04
Wailea Golf Course WB Right	B	10.3	0.12	C	19.4	0.28
8 - Makena Alanui Dr & Makena Rd (North)	**-**	**0.4**	**-**	**-**	**0.4**	**-**
Makena Alanui NB Left	A	8.6	0.01	A	8.9	0.01
Makena Rd (North) EB Left-Right	B	13.4	0.04	C	21.2	0.10
9 - Makena Alanui Dr & Makena Rd (South)	**-**	**1.1**	**-**	**-**	**3.1**	**-**
Makena Alanui NB Left-Through	A	8.5	0.02	A	8.8	0.02
Makena Rd (South) EB Left-Right	B	14.7	0.12	E	43.0	0.53
10 - Makena Alanui Dr & Honoiki St	**-**	**1.2**	**-**	**-**	**3.0**	**-**
Makena Alanui NB Left-Through	A	8.5	0.02	A	8.6	0.01
Honoiki EB Left-Right	C	15.1	0.12	E	36.5	0.49
11 - Makena Alanui Dr & Mākena Golf Course Dwy	**-**	**0.7**	**-**	**-**	**0.9**	**-**
Makena Alanui SB Left-Through	A	7.7	0.02	A	8.8	0.01
Makena Golf Course WB Left-Right	B	10.7	0.04	C	15.8	0.16
12 - Makena Alanui Dr & Mākena Tennis Club Dwy	**-**	**0.7**	**-**	**-**	**0.5**	**-**
Makena Alanui SB L-T	A	7.6	0.02	A	8.6	0.01
Makena Tennis Club WB L-R	A	9.3	0.02	B	12.4	0.07
13 - Makena Alanui Dr & Makena Keonoio Rd	**-**	**0.9**	**-**	**-**	**2.4**	**-**
Makena Alanui NB L-T	A	7.9	0.01	A	8.2	0.01
Makena Keonoio EB L-R	B	10.9	0.05	C	19.0	0.31

1. Pi‘ilani Highway at Kilohana Drive/Mapu Drive

Pi‘ilani Highway at Kilohana Drive/Mapu Drive is projected to operate at LOS B during the AM and PM peak hours. The southbound left turn is projected to operate at LOS F (v/c of 0.88) during the PM peak hour. The southbound left turn volume is 111 vph, or approximately two (2) vehicles per minute. This movement is expected to clear the intersection every cycle. No improvements are needed or recommended at this intersection.

2. Pi‘ilani Highway at Okolani Drive/Mikioi Place

This intersection operates at LOS B during the AM and PM peak hours. All movements operate at LOS C or better. No improvements are needed or recommended at this intersection.

3. Pi‘ilani Highway at Wailea Ike Drive

This intersection operates at LOS B and LOS D during the AM and PM peak hours, respectively. The northbound left and southbound left is projected to operate at LOS E (v/c of 0.55 and 0.87, respectively). The northbound left turn and southbound left turn volume is 21 vph and 391 vph, respectively, during the

PM peak hour. The northbound queue is expected to clear the intersection every cycle. This intersection is being analyzed with split phasing. Typically, intersections with split phasing have less effective green time for each approach phase. The signal timing can be adjusted to allow for the southbound dual left turn to clear the intersection very cycle. No improvements are needed or recommended at this intersection.

4. Wailea Alanui Drive at Okolani Drive

This intersection operates at LOS A and LOS B during the AM and PM peak hours, respectively. All movements operate at LOS B or better. No improvements are needed or recommended at this intersection.

5. Wailea Alanui Drive at Wailea Ike Drive

This intersection operates at LOS C during the AM and PM peak hours. All movements operate at LOS D or better. No improvements are needed or recommended at this intersection.

6. Wailea Alanui Drive/Makena Alanui Drive at Kaukahi Street

This intersection operates at LOS A during the AM and PM peak hours. All movements operate at LOS B or better. No improvements are needed or recommended at this intersection.

7. Makena Alanui Drive at Wailea Golf Course Drive

The Wailea Golf Course Drive westbound left turn will operate at LOS F (v/c of 0.04) during the PM peak hour. The westbound left turn volume is 3 vph during the PM peak hour. The volume on the minor street approach is too low to satisfy an AWSC or traffic signal vehicle warrant. The v/c is not a critical level (above 0.85) that will require mitigation. It is recommended this intersection remain a TWSC intersection.

8. Makena Alanui Drive at Makena Road (North)

All movements operate at LOS C or better for both peak hours.

9. Makena Alanui Drive at Makena Road (South)

The Mākena Road (South) eastbound approach will operate at LOS E (v/c of 0.53) during the PM peak hour. The eastbound approach volume is 87 vph during the PM peak hour. The volume on the minor street approach is too low to satisfy an AWSC or traffic signal vehicle warrant. The v/c is not a critical level (above 0.85) that will require mitigation. It is recommended this intersection remain a TWSC intersection.

10. Makena Alanui Drive at Honoiki Street

The Honoiki Street eastbound approach will operate at LOS E (v/c of 0.49) during the PM peak hour. The eastbound approach volume is 91 vph during the PM peak hour. The volume on the minor street approach is too low to satisfy an AWSC or traffic signal vehicle warrant. The v/c is not a critical level (above 0.85) that will require mitigation. It is recommended this intersection remain a TWSC intersection.

11. Makena Alanui Drive at Mākena Golf Course Driveway

All movements operate at LOS C or better for both peak hours.

12. Makena Alanui Drive at Mākena Tennis Club Driveway

All movements operate at LOS B or better for both peak hours.

13. Makena Alanui Drive at Makena Keonoio Road

All movements operate at LOS C or better for both peak hours.

H. Future (2058) Without Project Recommendation

Traffic signal timings should be monitored and updated as needed. No other improvements are recommended for the Future (2058) Without Project Condition.

I. Existing (2024) and Future Without Project Comparison

A comparison between the Existing (2024), and Future (2038), (2048), and (2058) conditions during the AM and PM peak hours are shown in Tables 17 and 18, respectively. The LOS and delay in the comparison tables reflect the recommended Future Without Project mitigation. The overall delay at most intersections will increase but will still operate at an acceptable LOS.

Table 17: Existing and Future Without Project Comparison – AM Peak Hour

Intersection	Existing (2024)		Future (2038) Without Project		Future (2048) Without Project		Future (2058) Without Project	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1 - Pi'ilani Hwy & Kilohana Dr/Mapu Dr	B	12.6	A	9.6	B	11.2	B	11.6
2 - Pi'ilani Hwy & Okolani Dr/Mikioi Place	B	10.5	A	9.0	B	10.0	B	10.5
3 - Pi'ilani Hwy & Wailea Ike Drive	Free-Flow		B	16.9	B	18.2	B	18.7
4 - Wailea Alanui Dr & Okolani Dr	B	11.8	C	15.3	A	6.9	A	7.3
5 - Wailea Alanui Dr & Wailea Ike Dr	C	24.1	C	24.7	C	25.9	C	26.0
6 - Wailea Alanui Dr & Kaukahi St	-	3.4	A	6.6	A	7.4	A	7.5
7 - Makena Alanui Dr & Wailea Golf Course Dr	-	0.7	-	0.9	-	1.3	-	1.6
8 - Makena Alanui Dr & Makena Rd (North)	-	0.5	-	0.4	-	0.4	-	0.4
9 - Makena Alanui Dr & Makena Rd (South)	-	1.1	-	1.1	-	1.2	-	1.1
9.5 - Makena Alanui Dr & Future North Access	-	0.4	-	1.3	-	1.2	-	1.2
10 - Makena Alanui Dr & Honoiki St	-	0.9	-	0.7	-	0.7	-	0.7
11 - Makena Alanui Dr & Mākena Golf Course Dwy	-	0.9	-	0.7	-	0.7	-	0.7
12 - Makena Alanui Dr & Mākena Tennis Club Dwy	-	0.6	-	1.0	-	0.9	-	0.9

Intersections 3, 4, and 6 LOS and delay are shown with recommended mitigation

Table 18: Existing and Future Without Project Comparison – PM Peak Hour

Intersection	Existing (2024)		Future (2038) Without Project		Future (2048) Without Project		Future (2058) Without Project	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1 - Pi'ilani Hwy & Kilohana Dr/Mapu Dr	C	27.0	B	15.6	B	19.9	C	22.3
2 - Pi'ilani Hwy & Okolani Dr/Mikioi Place	B	11.0	A	9.6	B	12.1	B	12.1
3 - Pi'ilani Hwy & Wailea Ike Drive	Free-Flow		C	28.2	C	33.5	D	37.5
4 - Wailea Alanui Dr & Okolani Dr	B	14.7	D	26.0	B	10.1	B	10.7
5 - Wailea Alanui Dr & Wailea Ike Dr	C	29.8	C	27.4	C	30.6	C	32.4
6 - Wailea Alanui Dr & Kaukahi St	-	3.8	A	7.0	A	7.8	A	8.1
7 - Makena Alanui Dr & Wailea Golf Course Dr	-	0.7	-	1.0	-	1.6	-	2.0
8 - Makena Alanui Dr & Makena Rd (North)	-	0.4	-	0.3	-	0.4	-	0.4
9 - Makena Alanui Dr & Makena Rd (South)	-	1.5	-	1.9	-	2.8	-	3.1
10 - Makena Alanui Dr & Honoiki St	-	0.1	-	2.3	-	2.7	-	3.0
11 - Makena Alanui Dr & Mākena Golf Course Dwy	-	0.9	-	0.9	-	0.9	-	0.9
12 - Makena Alanui Dr & Mākena Tennis Club Dwy	-	0.1	-	0.5	-	0.5	-	0.5
13 - Makena Alanui Dr & Makena Keonoio Rd	-	1.6	-	2.1	-	2.4	-	2.4

Intersections 3, 4, and 6 LOS and delay are shown with recommended mitigation

IV. Future With Project Conditions

A. Project Phasing

The Mākena Mauka project is proposing to be developed in phases, with full build out and occupancy by 2058. The Future conditions were evaluated for the 10-, 20- and 30-year milestone years after the anticipated start of construction in 2028, aligning with years 2038, 2048 and 2058. The expected LOS were evaluated with the development.

Construction is expected to begin in 2028 with a steady buildout through 2058. The following was the intended project density as of April 2025:

- All 109 workforce housing units are assumed to be completed by 2038.
- Construction of the 543 market value housing units are to be built gradually over 30 years.
    - Market value housing units are assumed to be constructed in equal amounts (60 of 180 single-family units, 121 of 363 multi-family units) by 2038, 2048, and 2058, respectively.
- Mākena Mauka will consist of 180 single-family homes, 90% (162) of these homes are anticipated by the developer to be "second" homes which owners would use a couple months a year.
    - 162 units are analyzed as "Recreational Homes".
- Mākena Mauka will consist of 363 multi-family homes, 90% (327) of these homes are anticipated by the developer to be "second" homes which owners would use a couple months a year.
    - 327 units are analyzed as "Recreational Homes".
- Project generated volumes in 2038 are assumed to use the "North Access Road", which is currently between Makena Road (South) and Honoiki Street, and the Mākena Golf Course Driveway which is currently located just south of Honoiki Street.
- Project generated volumes in 2048 are assumed to use the Mākena Tennis Club Driveway (currently located just south of Honoiki Street), "North Access Road", and Mākena Golf Course Driveway.
- Project generated volumes in 2058 are assumed to use the "South Access Road", which will be a new roadway intersecting Makena Alanui Drive across the existing Mākena Beach Parking Lot, and the three northern access roads.
- All operational support buildings are assumed to be completed in the first phase.

B. Future Roadway Assumptions

The widening of Piʻilani Highway from Kilohana Street to Wailea Ike Drive, the signalization of Piʻilani Highway at Wailea Ike Drive, and the signalization of Wailea Alanui Drive/Makena Alanui Drive at Kaukahi Street part of the Honuaula (Wailea 670) project are assumed to be in place when Mākena Mauka begins construction. These improvements were including in the Future Without Project model and will be part of the Future With Project traffic model.

The *2025 Ledcor Wailea Resort Final EIS* identified the Wailea Ike Drive at Okolani Street northbound left turn to operate at LOS E in 2033 and LOS F in 2042. The intersection will not pass the 4-hour traffic signal warrant. A single lane roundabout or other control modifications could be considered. The COM Street Design Manual (COM, 2018) states: "New traffic signals or four-way stop-controlled intersections are discouraged. Roundabouts are the preferred treatment for intersections that cannot be adequately controlled by one-way or two-way stop control." This intersection will be analyzed as a single lane

roundabout in all Future With Project conditions. This improvement is assumed to be constructed by others.

C. Future With Project Generated Volumes

Trips resulting from the project were calculated and added to the road network using the four-step trip generation methodology: trip generation, trip distribution, modal choice, route assignment.

1. Trip Generation

The proposed mixed-use development is planned to include commercial and office space, workforce housing units, market rate multi-family units, recreational homes, and market rate single-family units. Trips for the proposed development were calculated using *ITE Trip Generation Manual* and the associated trip generation rates are shown in Table 19. The workforce housing, market-value single-family homes and multi-family homes will use the Affordable Housing (ITE Code 223), Single-Family Detached (ITE Code 210) and Multi-Family Low-Rise (ITE Code 220), respectively.

The project estimates that 10% of the single-family and multi-family homes will be full-time residents, while the remaining 90% will consist of part-time residents. The 90%-10% ratio split between full-time residents and part-time residents is the same ratio used in the *2017 Mākena Resort Final EA* and the *2024 Ledcor South Maui Final EIS*. The "Recreational Homes" description provided from the *ITE Trip Generation Manual* states: "A recreational home is either (1) a second home used by its owner periodically for recreation or (2) rented on a seasonal basis. Some sites in the database are located within a resort that contains local services and complete recreational facilities." This description matches the intended use of the seconds homes in Mākena Mauka. Project generated trips for the part-time residential homes will use rates from the "Recreational Home" (ITE Code 260) land use.

In addition to the residential offerings, the development is proposing approximately 135,000 SF of operational support buildings, which include:

- Restaurant, Clubhouse, Kitchen, Locker Rooms, Fitness, Back of House (48,000 SF),
- Golf Maintenance, Staff Center, Golf Operations, Receiving Area (63,000 SF), and
- Arrival Hale, Farm Operations, Restrooms (24,000 SF).

Of these operational support buildings, the buildings totaling 48,000 SF are expected to generate additional trips while the buildings totaling 63,000 SF and 24,000 SF were assumed to be ancillary and are not expected to generate new vehicle trips from outside the development. The "Health/Fitness Club" (ITE Code 492) description provided from the *ITE Trip Generation Manual* states: "A health/fitness club is a privately-owned facility that primarily focuses on individual fitness or training. It typically provides exercise classes, fitness equipment, a weight room, spa, lockers rooms, and a small restaurant or snack bar." This description matches the intended use of the buildings totaling 48,000 SF and therefore project generated trips for these will use rates from the "Health/Fitness Club" (ITE Code 492) land use. The operational buildings were assumed to be completed by 2038.

Table 19: Project Related Land Use

ITE Code	Variable	AM Peak Hour of Adjacent Street			PM Peak Hour of Adjacent Street		
		Equation	% In	% Out	Equation	% In	% Out
Single-Family Detached (210)	Dwelling Units	Ln(T) = 0.91 Ln(X) + 0.12	25	75	Ln(T) = 0.94 Ln(X) + 0.27	63	37
Multi-Family Low-Rise (220)	Dwelling Units	T = 0.31(X) + 22.85	24	76	T = 0.43(X) + 20.55	63	37
Affordable Housing (223)	Dwelling Units	Ln(T) = 0.81 Ln(X) + 0.22	29	71	Ln(T) = 0.72 Ln(X) + 0.64	59	41
Recreational Homes (260)	Dwelling Units	Ln(T) = 1.00 Ln(X) - 1.53	55	45	Ln(T) = 0.93 Ln(X) - 0.76	46	54
Health/Fitness Club (492)	1,000 SF GFA	T = 1.31(X)	51	49	Ln(T) = 0.67 Ln(X) + 2.44	57	43

Resulting project related trips for each phase and total are shown in Table 20.

Table 20: Project Related Generated Trips

Year	Land Use	Units	AM Peak Hour of Adjacent Street (7 - 9 AM)			PM Peak Hour of Adjacent Street (4 - 6 PM)		
			In	Out	Total	In	Out	Total
2038	Single-Family (10% of SF)	6 Units	1	5	6	4	3	7
	Recreational Homes (90% of SF)	54 Units	6	6	12	9	10	19
	Multi-Family (10% of MF)	12 Units	6	21	27	16	10	26
	Recreational Homes (90% of MF)	109 Units	13	11	24	17	20	37
	Affordable Housing (Multi-Family)	109 Units	16	40	56	33	23	56
	Health/Fitness Club	48,000 SF	32	31	63	87	67	154
2038 Total Project Generated Trips			74	114	188	166	133	299
2048	Single-Family (10% of SF)	6 Units	1	5	6	4	3	7
	Recreational Homes (90% of SF)	54 Units	6	6	12	9	10	19
	Multi-Family (10% of MF)	12 Units	6	21	27	16	10	26
	Recreational Homes (90% of MF)	109 Units	13	11	24	17	20	37
2048 Total Project Generated Trips			26	43	69	46	43	89
2058	Single-Family (10% of SF)	6 Units	1	5	6	4	3	7
	Recreational Homes (90% of SF)	54 Units	6	6	12	9	10	19
	Multi-Family (10% of MF)	12 Units	6	21	27	16	10	26
	Recreational Homes (90% of MF)	109 Units	13	11	24	17	20	37
2058 Total Project Generated Trips			26	43	69	46	43	89
Mākena Mauka Project Generated Trips Full Buildout			126	200	326	258	219	477

Trip reduction associated with pass-by or diverted trips was not included in this analysis so as to assume the worst-case scenario from an external vehicle trip generation standpoint. A supplemental Transportation Management Plan (TMP) is being prepared to determine appropriate transportation demand management (TDM) strategies to help reduce vehicle traffic through alternate forms of transportation.

2. Trip Distribution

The project-related trips were distributed at Wailea Ika Drive and Wailea Alanui Drive using existing traffic patterns. At all other study intersections, project related trips were not distributed, and instead added to the main line volume. The trip distribution is in line with other traffic reports in the area.

3. Modal Choice

Without additional connectivity and access, the resulting number of users likely to travel to Mākena Mauka by foot, bike, or transit is relatively small and thus no factor was applied to the resulting volumes. Therefore, all external project generated trips are assumed to be vehicle trips.

4. Trip Assignment

Total project related vehicular trips for years 2038, 2048 and 2058 are shown in Figures 13-14, 15-16, and 17-18, respectively.

5. Future With Project Volumes

External project related vehicular volumes were added to the Future Without Project traffic volumes which resulted in the Future (2038), (2048) and (2058) With Project traffic volumes shown in Figures 19-20, 21-22, and 23-24, respectively.

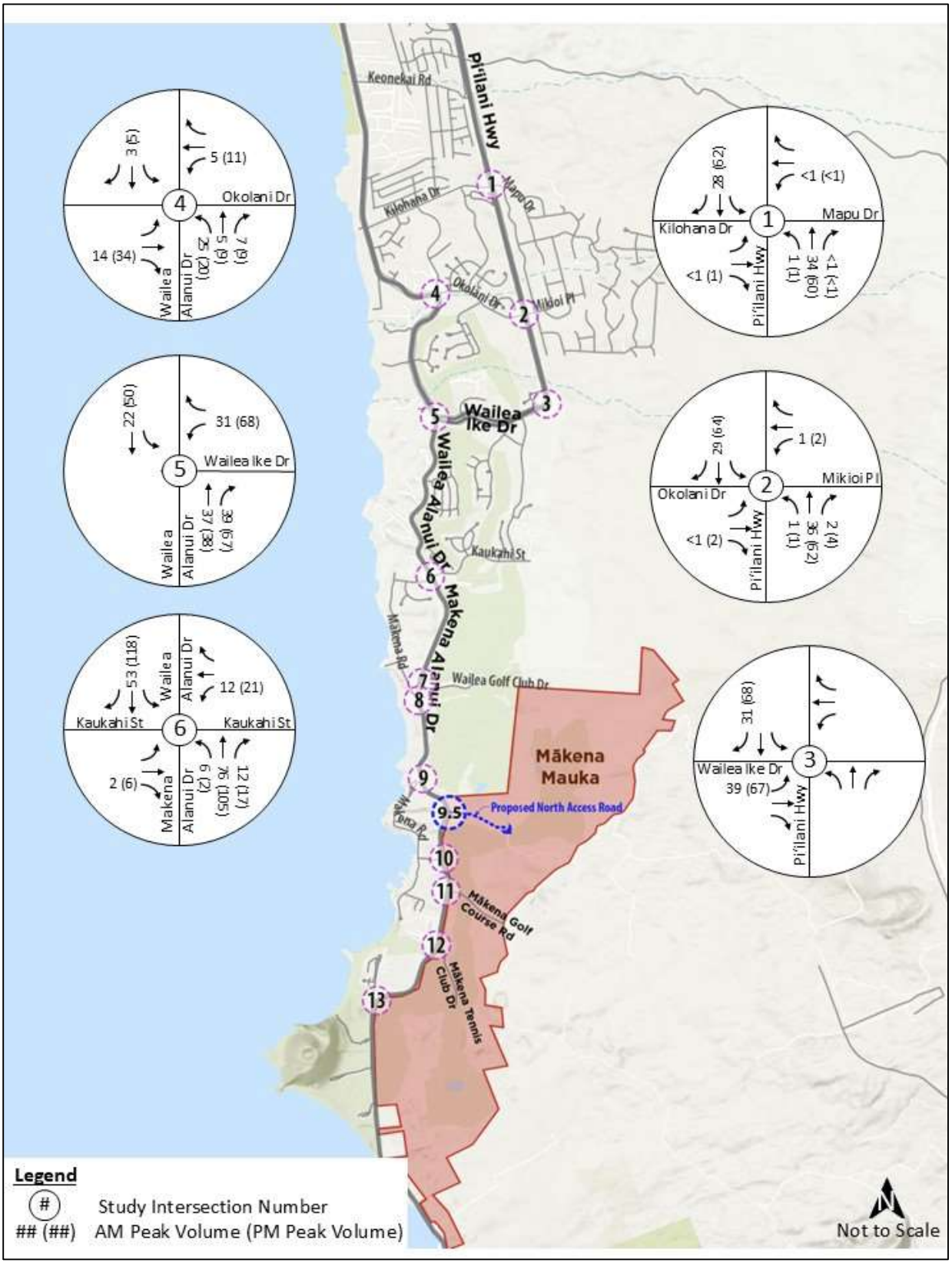

Figure 13: Peak Hour 2038 Project Related Trips – Study Intersections #1 to #6

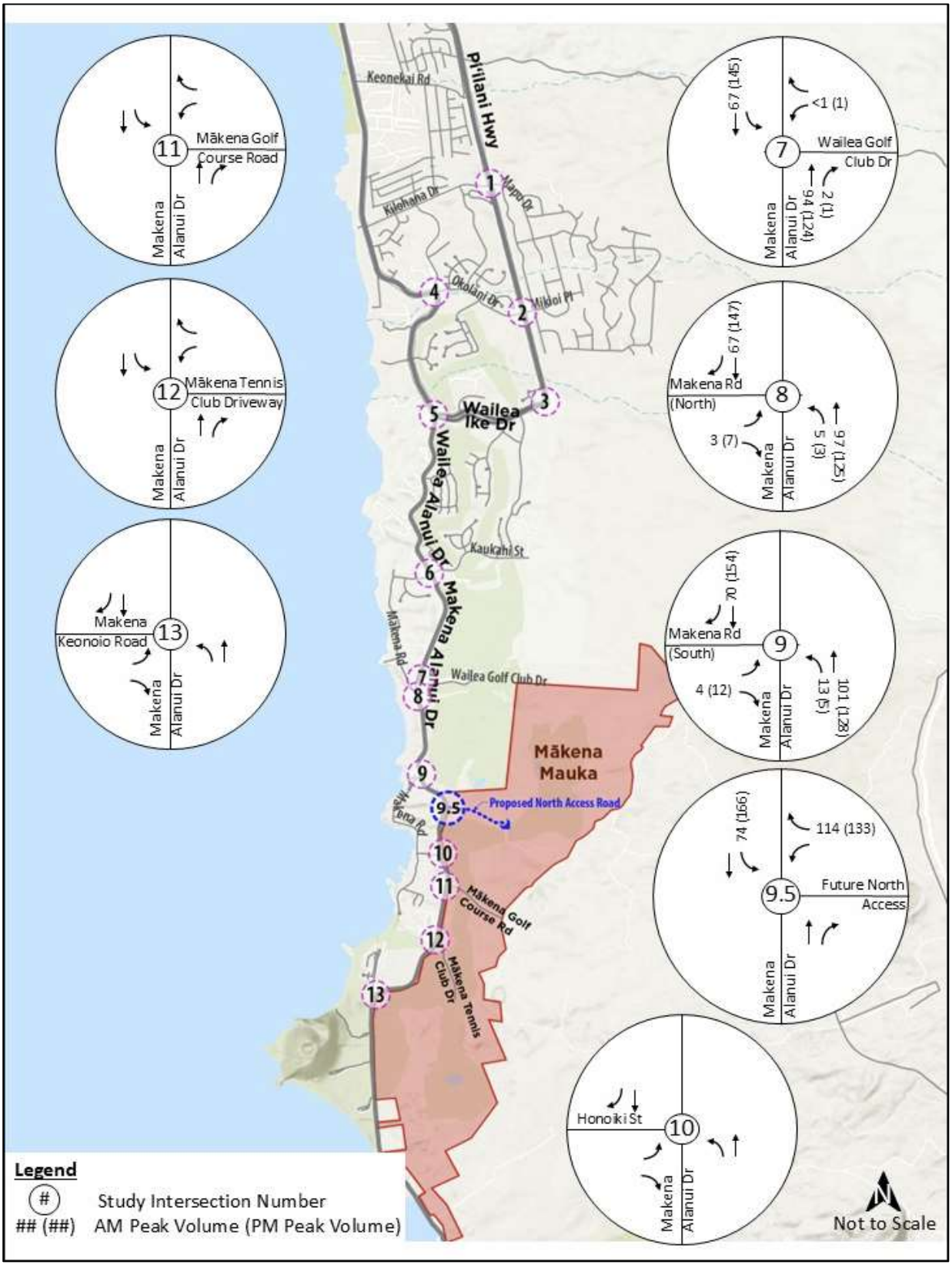

Figure 14: Peak Hour 2038 Project Related Trips – Study Intersections #7 to #13

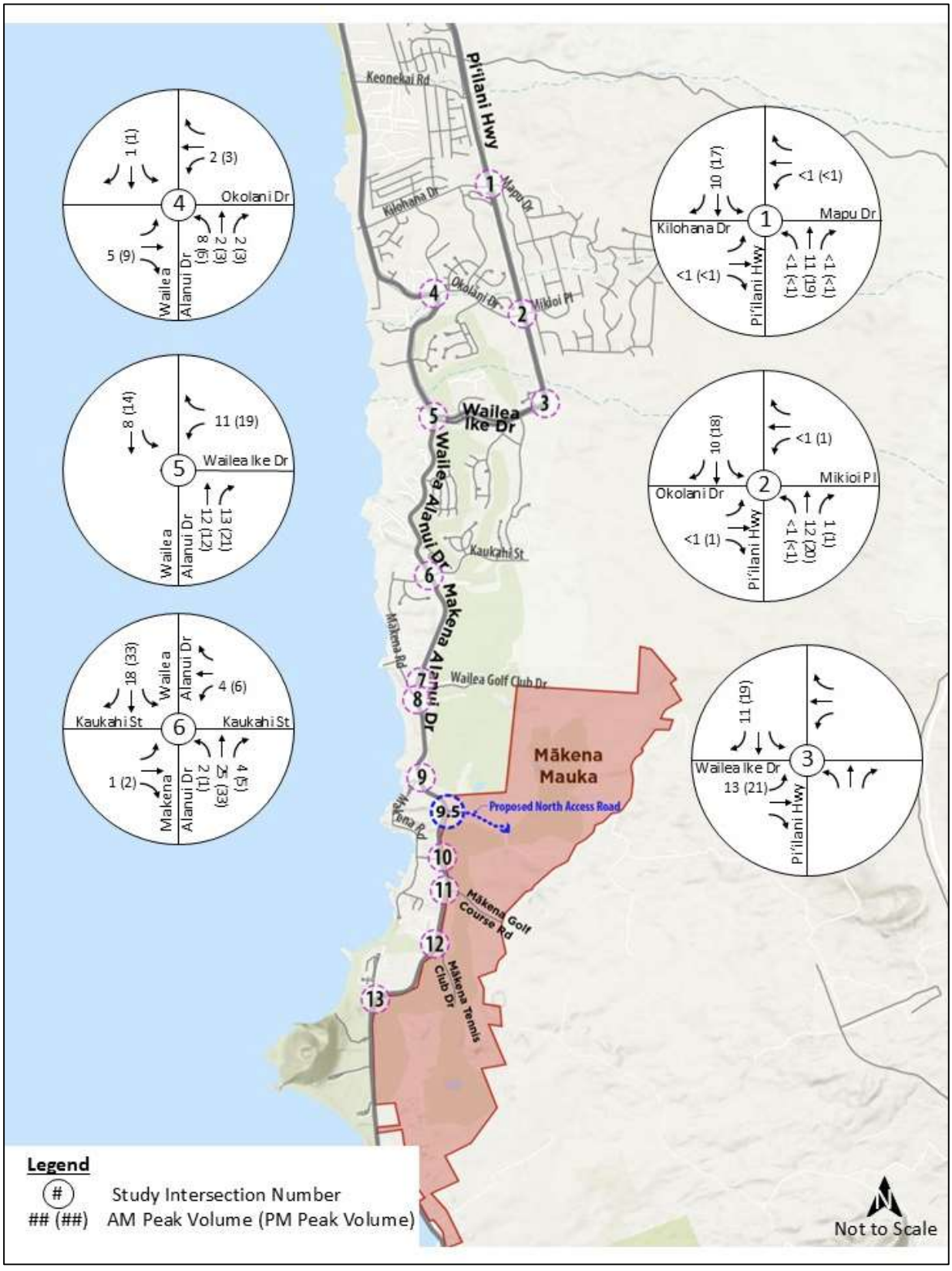

Figure 15: Peak Hour 2048 Project Related Trips – Study Intersections #1 to #6

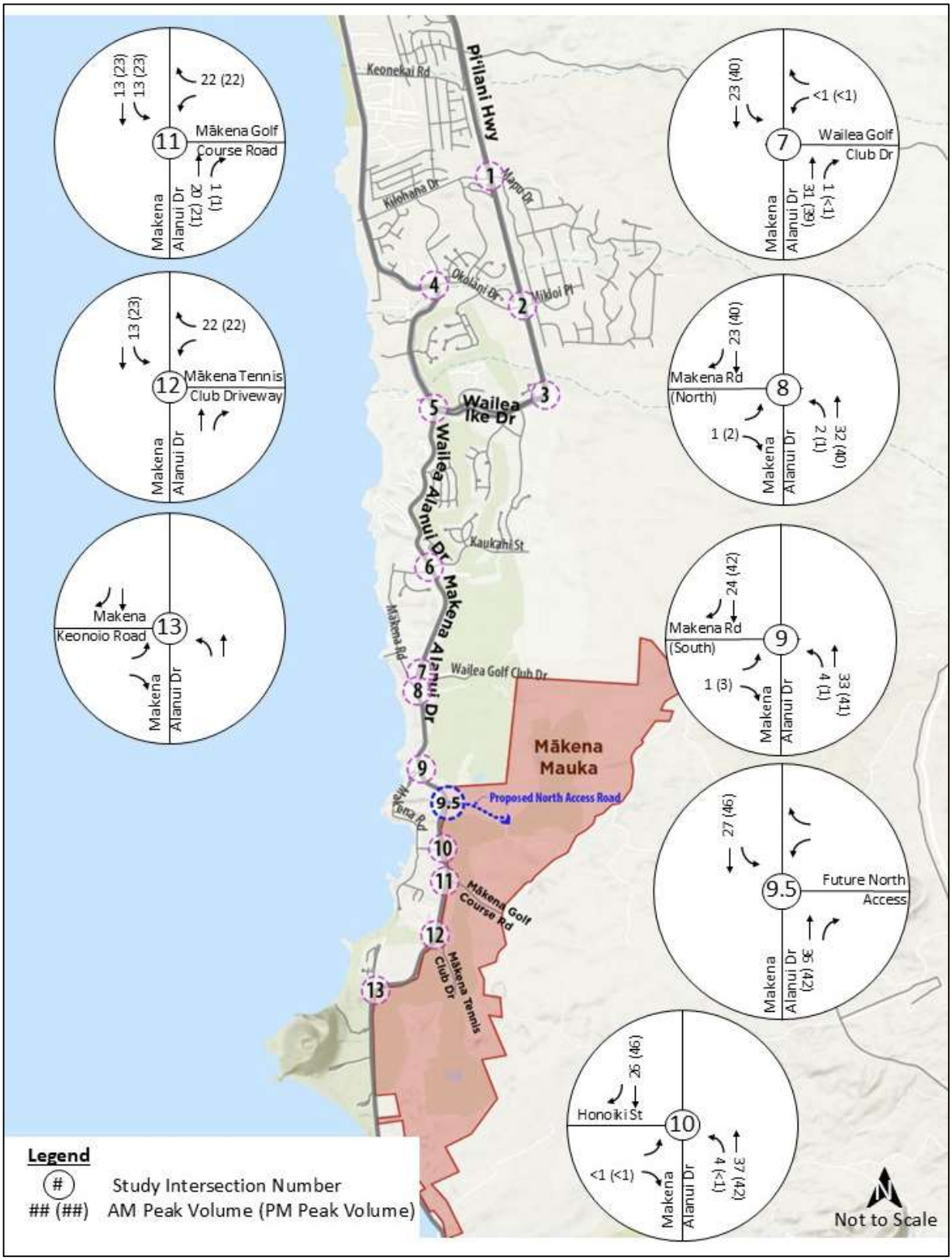

Figure 16: Peak Hour 2048 Project Related Trips – Study Intersections #7 to #13

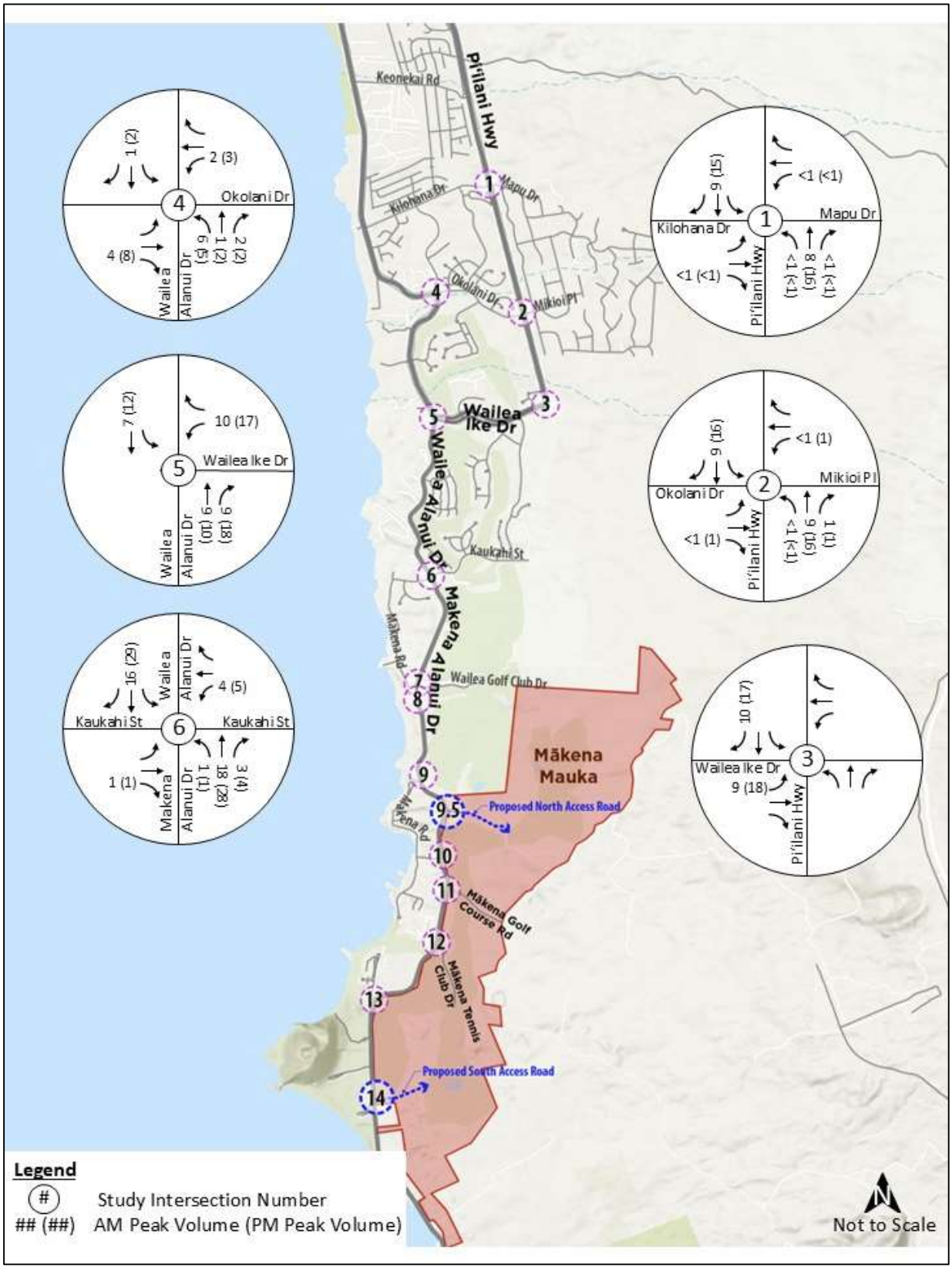

Figure 17: Peak Hour 2058 Project Related Trips – Study Intersections #1 to #6

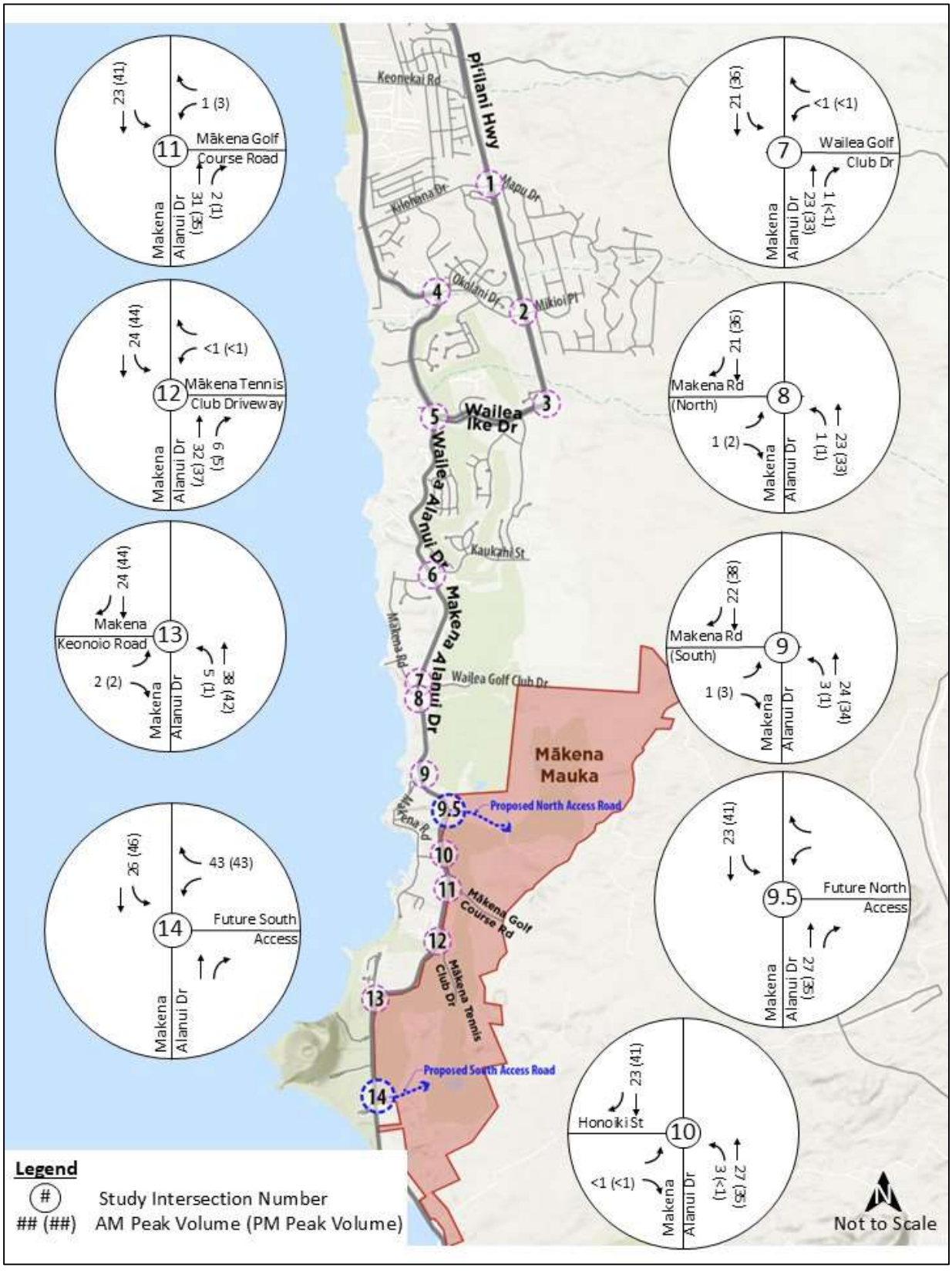

Figure 18: Peak Hour 2058 Project Related Trips – Study Intersections #7 to #14

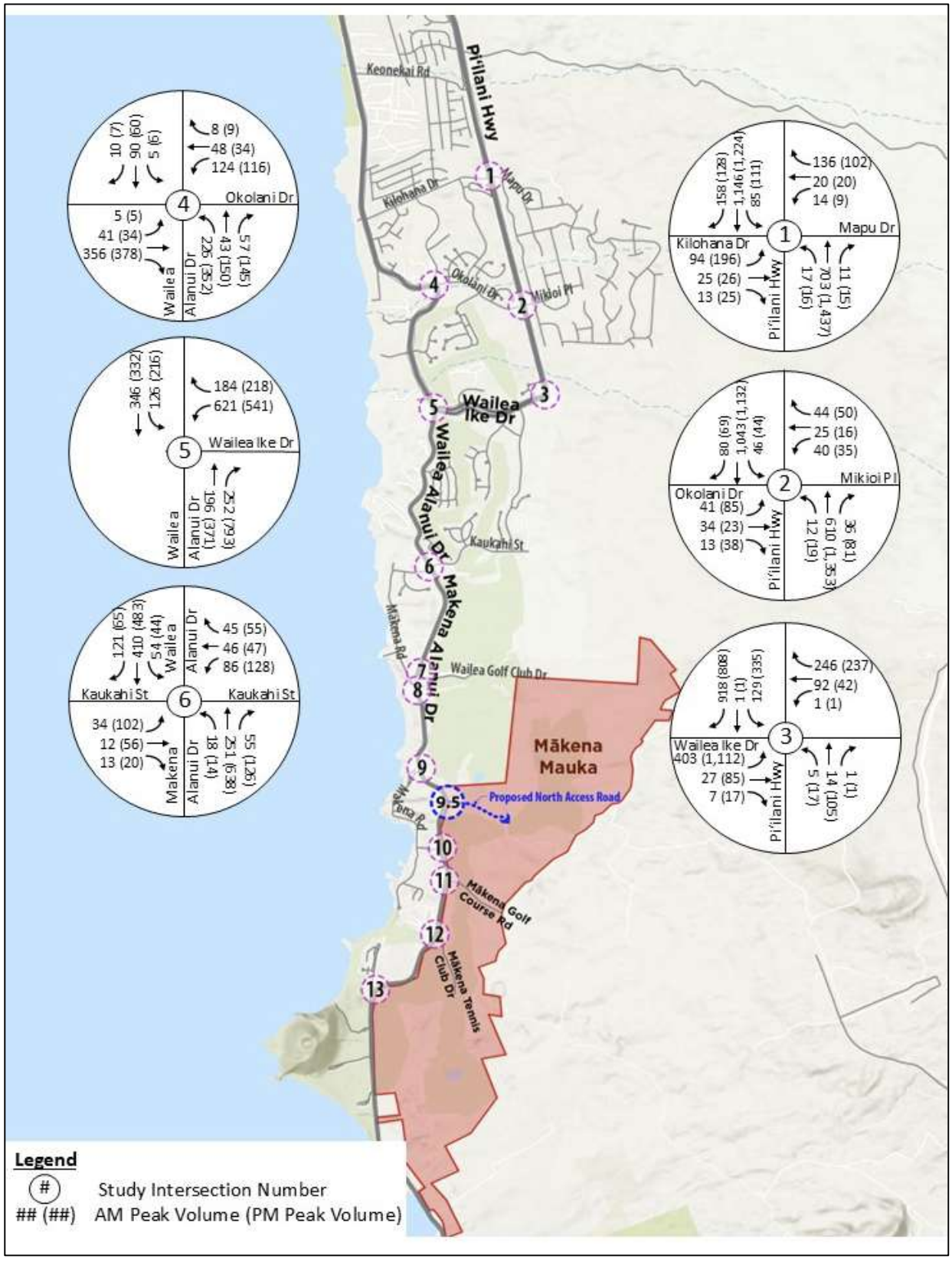

Figure 19: Future (2038) With Project Peak Hour Volumes– Study Intersections #1 to #6

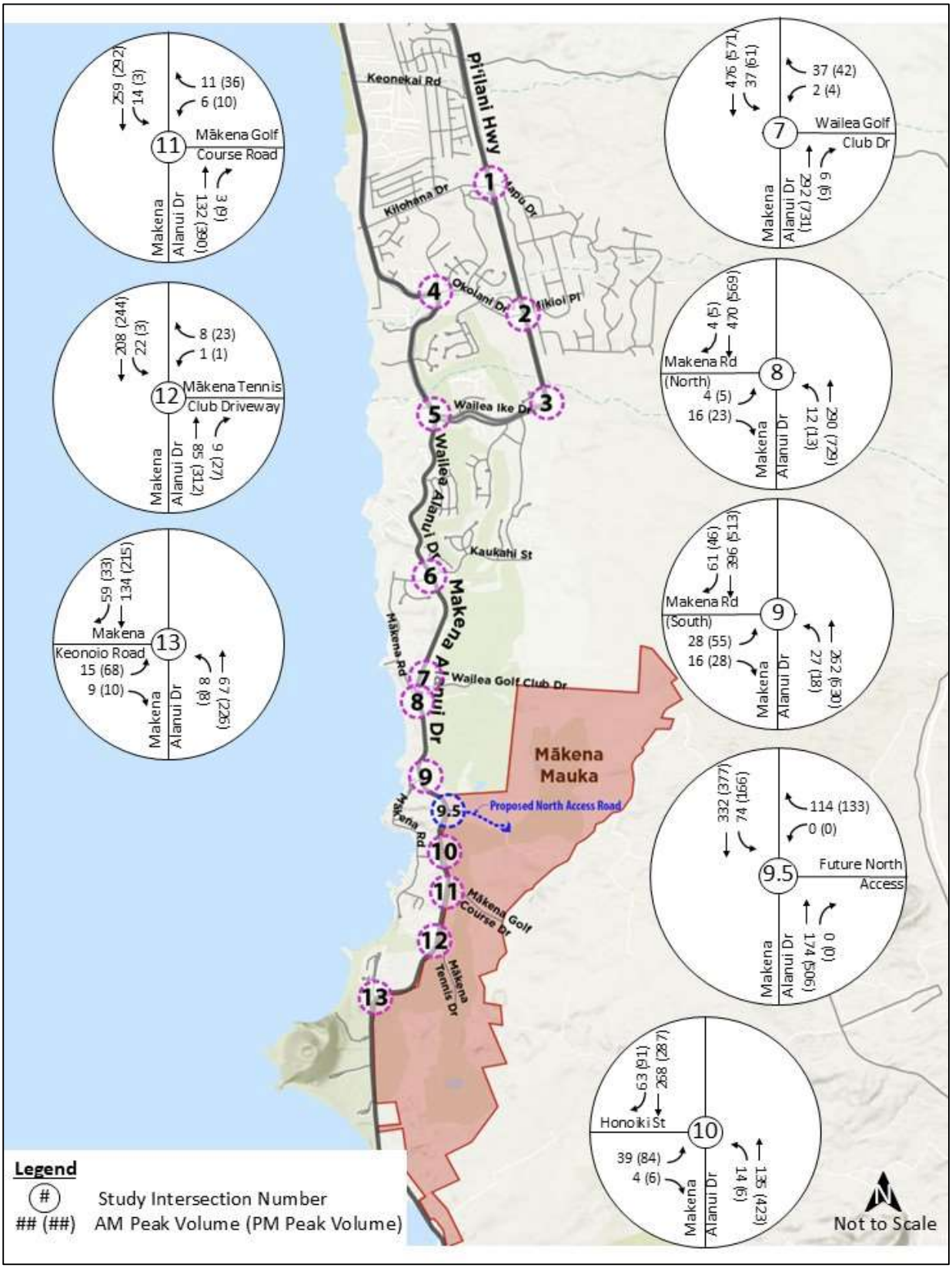

Figure 20: Future (2038) With Project Peak Hour Volumes– Study Intersections #7 to #13

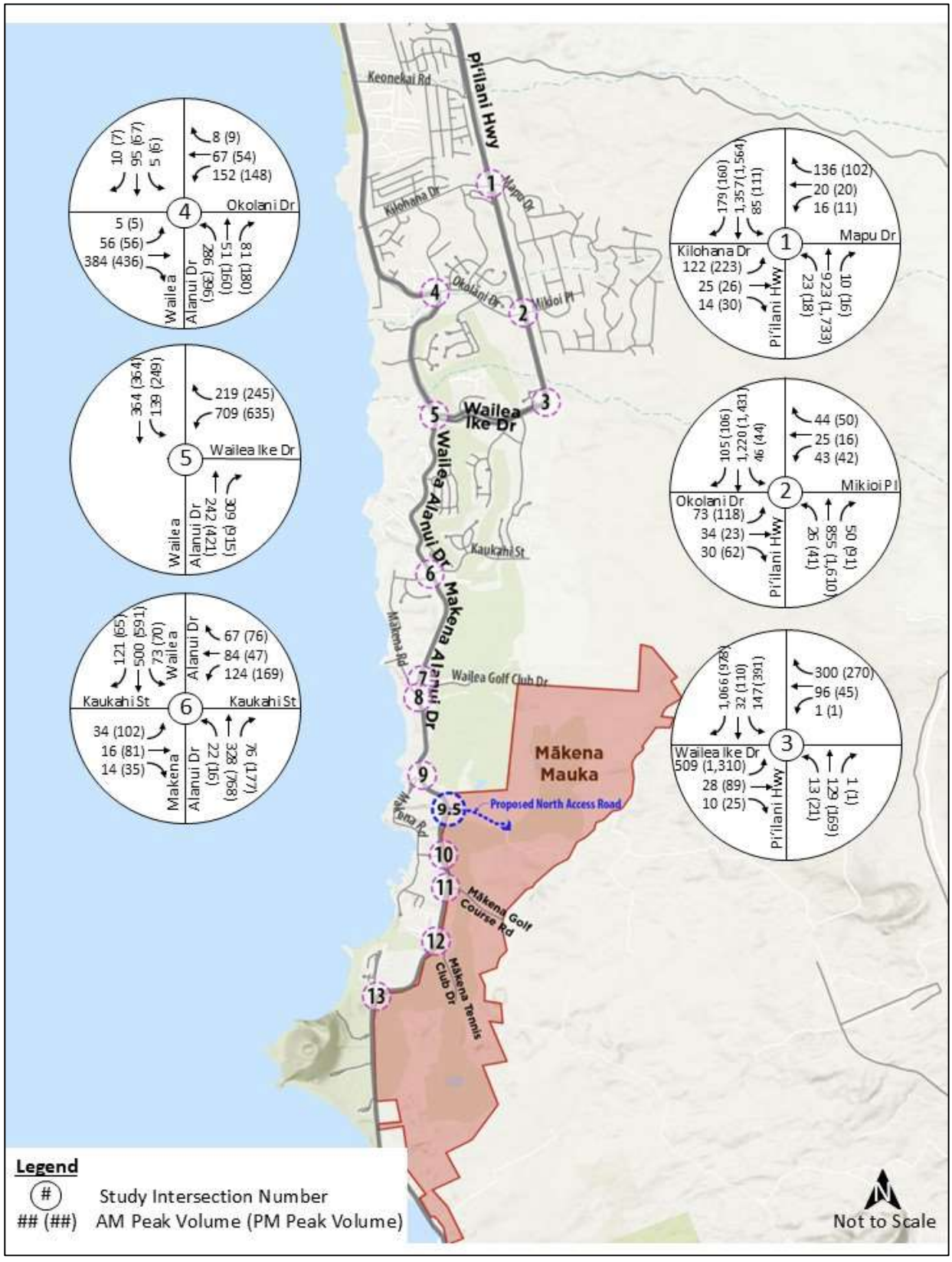

Figure 21: Future (2048) With Project Peak Hour Volumes– Study Intersections #1 to #6

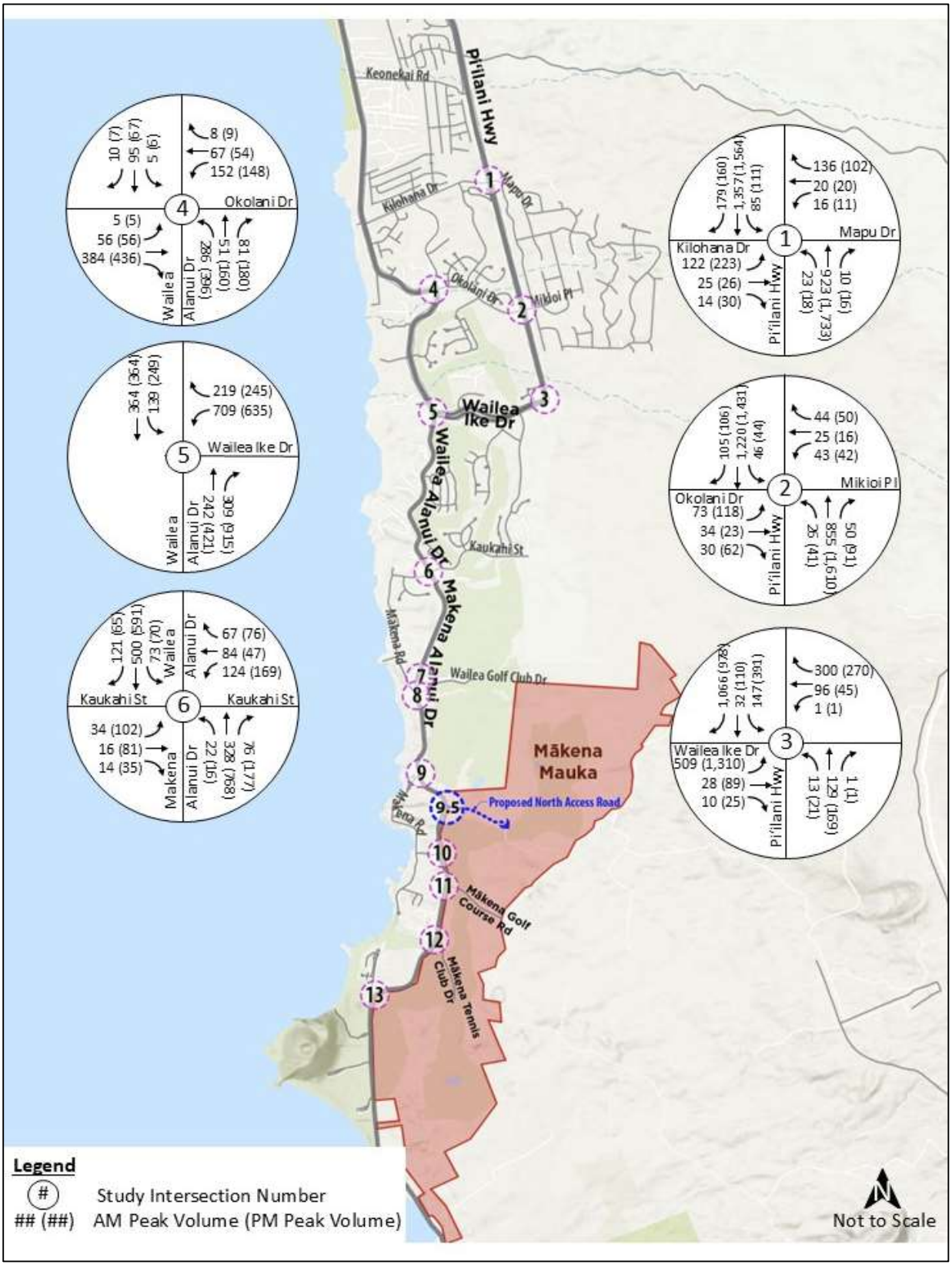

Figure 22: Future (2048) With Project Peak Hour Volumes – Study Intersections #7 to #13

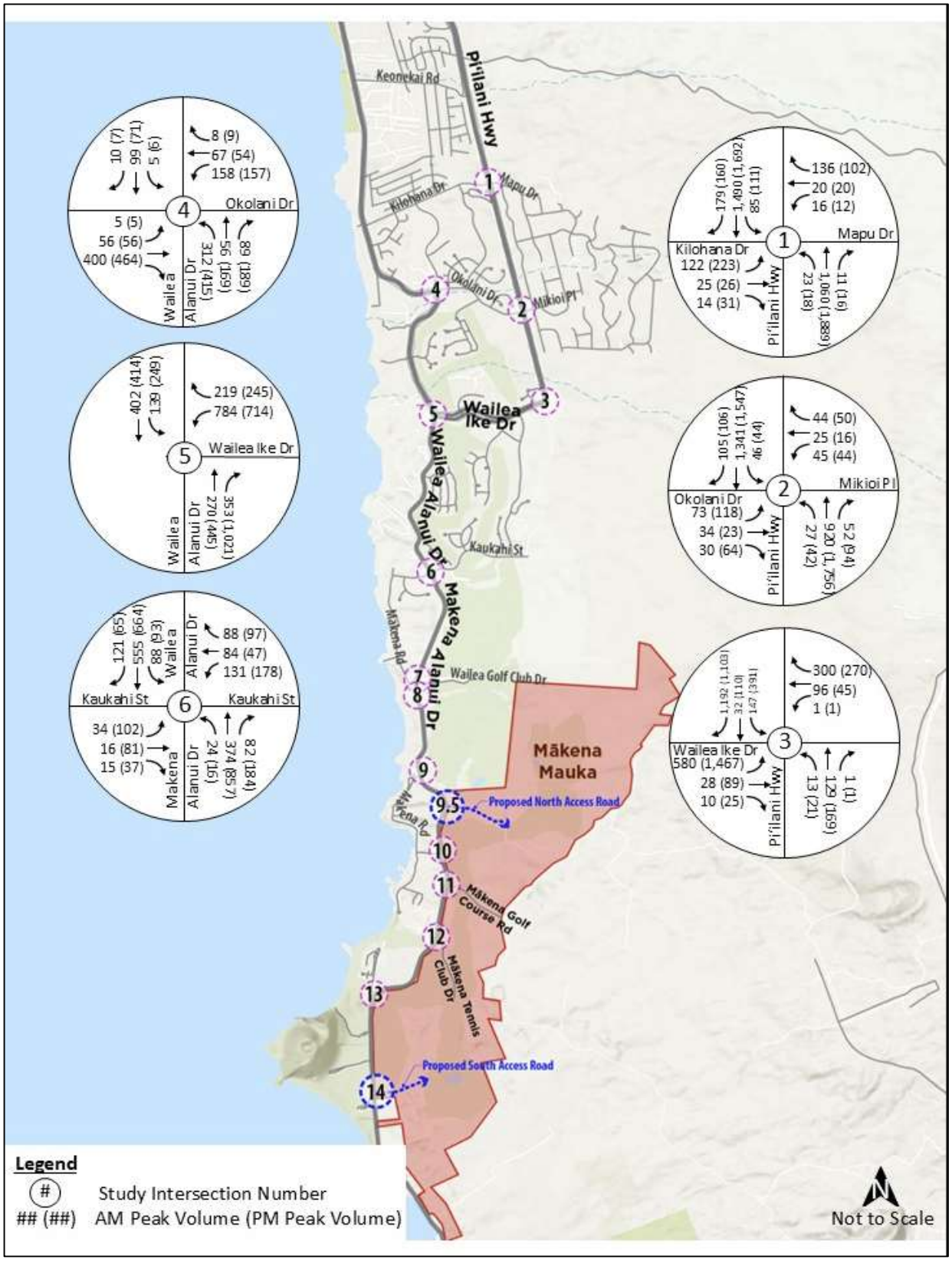

Figure 23: Future (2058) With Project Peak Hour Volumes– Study Intersections #1 to #6

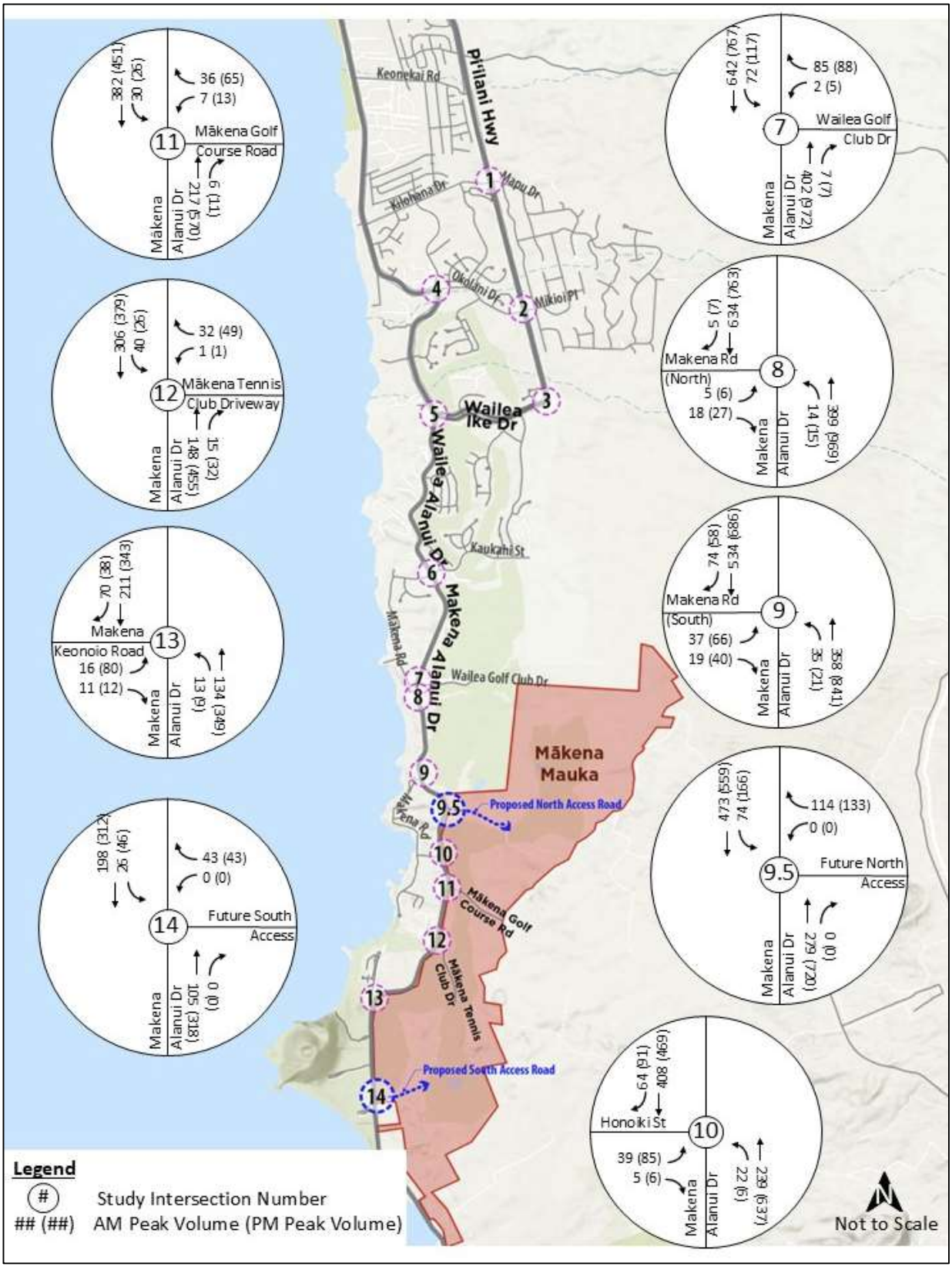

Figure 24: Future (2058) With Project Peak Hour Volumes – Study Intersections #7 to #14

D. Future (2038) With Project LOS

Future (2038) With Project intersection LOS, v/c ratio and delay were determined for the AM and PM peak hours (see Table 21 and 22). Intersections and individual movements that operate at LOS E or worse are highlighted in yellow. Future (2038) With Project Synchro worksheets can be found in Appendix F.

Table 21: Future (2038) With Project Intersection Level of Service

Future (2038) With Project	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
1 - Pi'ilani Hwy & Kilohana Dr/Mapu Dr	**A**	**9.7**	**-**	**B**	**16.0**	**-**
Pi'ilani NB Left	C	34.5	0.46	D	43.4	0.47
Pi'ilani NB Through	A	7.1	0.36	B	16.0	0.77
Pi'ilani NB Right	A	5.3	0.01	A	7.7	0.02
Pi'ilani SB Left	C	33.1	0.73	D	53.0	0.79
Pi'ilani SB Through	A	7.3	0.55	A	10.0	0.59
Kilohana EB Left	C	24.5	0.36	C	29.2	0.58
Kilohana EB Through-Right	C	22.9	0.15	C	24.4	0.09
Mapu WB Left-Through	C	22.9	0.14	C	24.4	0.08
2 - Pi'ilani Hwy & Okolani Dr/Mikioi Place	**A**	**9.0**	**-**	**A**	**10.0**	**-**
Pi'ilani NB Left	C	27.5	0.43	C	28.8	0.46
Pi'ilani NB Through	A	7.7	0.43	B	10.2	0.77
Pi'ilani SB Left	C	20.7	0.51	C	25.8	0.53
Pi'ilani SB Through	A	8.3	0.67	A	7.5	0.62
Okolani EB Left	B	14.4	0.11	B	19.8	0.29
Okolani EB Through-Right	B	14.5	0.16	B	18.8	0.13
Mikioi WB Left-Through	B	14.7	0.19	B	19.2	0.19
3 - Pi'ilani Hwy & Wailea Ike Drive	**B**	**17.2**	**-**	**C**	**26.9**	**-**
Pi'ilani NB Left	D	43.4	0.42	D	44.0	0.48
Pi'ilani NB Through-Right	B	17.7	0.04	C	34.6	0.45
Pi'ilani SB Left	C	20.1	0.44	D	39.3	0.80
Pi'ilani SB Through	B	14.3	0.00	C	24.2	0.00
Wailea Ike EB Double Left	B	17.7	0.66	C	24.3	0.87
Wailea Ike EB Through-Right	B	14.9	0.11	B	13.7	0.15
Wailea Ike WB Left-Through	B	17.6	0.35	C	29.2	0.22
Wailea Ike WB Double Right	B	14.4	0.39	C	22.7	0.37
4 - Wailea Alanui Dr & Okolani Dr	**A**	**6.4**	**-**	**A**	**8.9**	**-**
Wailea Alanui NB approach	A	5.3	0.28	A	9.8	0.59
Wailea Alanui SB approach	A	5.5	0.13	A	6.1	0.12
Okolani EB approach	A	8.0	0.42	A	8.3	0.45
Okolani WB approach	A	5.5	0.20	A	7.9	0.26
5 - Wailea Alanui Dr & Wailea Ike Dr	**C**	**24.7**	**-**	**C**	**29.2**	**-**
Wailea Alanui NB Through	B	12.9	0.23	C	20.9	0.53
Wailea Alanui SB Left	D	46.6	0.79	D	49.9	0.87
Wailea Alanui SB Through	A	6.0	0.16	A	5.8	0.17
Wailea Ike WB Double Left	C	34.3	0.83	D	40.9	0.86

Table 22: Future (2038) With Project Intersection Level of Service (cont.)

Future (2038) With Project	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
6 - Wailea Alanui Dr & Kaukahi St	**A**	**6.7**	**-**	**A**	**7.6**	**-**
Makena Alanui NB Left-Through	A	5.7	0.34	A	6.9	0.66
Wailea Alanui SB Left	A	4.8	0.07	A	4.2	0.08
Wailea Alanui SB Through	A	6.9	0.62	A	5.8	0.54
Kaukahi EB Left-Through-Right	A	7.9	0.09	B	11.9	0.34
Kaukahi WB Left-Through	A	8.6	0.25	B	12.1	0.38
7 - Makena Alanui Dr & Wailea Golf Course Dr	**-**	**0.9**	**-**	**-**	**1.0**	**-**
Wailea Alanui SB Left	A	8.0	0.03	A	9.9	0.09
Wailea Golf Course WB Left	C	17.2	0.01	E	40.5	0.04
Wailea Golf Course WB Right	B	10.3	0.05	C	16.1	0.13
8 - Makena Alanui Dr & Makena Rd (North)	**-**	**0.4**	**-**	**-**	**0.5**	**-**
Makena Alanui NB Left	A	8.5	0.01	A	9.1	0.02
Makena Rd (North) EB Left-Right	B	12.7	0.05	C	18.8	0.11
9 - Makena Alanui Dr & Makena Rd (South)	**-**	**1.1**	**-**	**-**	**2.9**	**-**
Makena Alanui NB Left-Through	A	8.4	0.03	A	9.0	0.02
Makena Rd (South) EB Left-Right	B	14.8	0.11	E	41.5	0.52
9.5 - Makena Alanui Dr & Future North Access	**-**	**2.4**	**-**	**-**	**2.9**	**-**
Makena Alanui SB Left-Through	A	7.8	0.06	A	9.3	0.18
Future North Access WB Left-Right	A	9.9	0.15	B	14.2	0.27
10 - Makena Alanui Dr & Honoiki St	**-**	**1.3**	**-**	**-**	**2.3**	**-**
Makena Alanui NB Left-Through	A	8.2	0.01	A	8.2	0.01
Honoiki EB Left-Right	B	13.0	0.10	C	22.1	0.34
11 - Makena Alanui Dr & Mākena Golf Course Dwy	**-**	**0.7**	**-**	**-**	**0.9**	**-**
Makena Alanui SB Left-Through	A	7.6	0.01	A	8.4	0.00
Makena Golf Course WB Left-Right	A	10.2	0.03	B	13.1	0.11
12 - Makena Alanui Dr & Mākena Tennis Club Dwy	**-**	**0.7**	**-**	**-**	**0.5**	**-**
Makena Alanui SB L-T	A	7.5	0.02	A	8.2	0.00
Makena Tennis Club WB L-R	A	9.1	0.01	B	11.0	0.05
13 - Makena Alanui Dr & Makena Keonoio Rd	**-**	**1.0**	**-**	**-**	**2.1**	**-**
Makena Alanui NB L-T	A	7.7	0.01	A	7.9	0.01
Makena Keonoio EB L-R	B	10.1	0.04	B	14.2	0.20

1. Pi‘ilani Highway at Kilohana Drive/Mapu Drive

Pi‘ilani Highway at Kilohana Drive/Mapu Drive is projected to operate at LOS A and LOS B during the AM and PM peak hours, respectively. All movements operate at LOS D or better. No improvements are needed or recommended at this intersection.

2. Pi‘ilani Highway at Okolani Drive/Mikioi Place

This intersection operates at LOS A during the AM and PM peak hours. All movements operate at LOS C or better. No improvements are needed or recommended at this intersection.

3. Pi'ilani Highway at Wailea Ike Drive

This intersection operates at LOS B and LOS C during the AM and PM peak hours, respectively. All movements operate at LOS D or better. No improvements are needed or recommended at this intersection.

4. Wailea Alanui Drive at Okolani Drive

The intersection and all movements will operate at LOS A during both peak hours. No improvements are needed or recommended at this intersection.

5. Wailea Alanui Drive at Wailea Ike Drive

This intersection will operate at LOS C during the AM and PM peak hours. All movements operate at LOS D or better. No improvements are needed or recommended at this intersection.

6. Wailea Alanui Drive/Makena Alanui Drive at Kaukahi Street

This intersection will operate at LOS A during the AM and PM peak hours. All movements operate at LOS B or better. No improvements are needed or recommended at this intersection.

7. Makena Alanui Drive at Wailea Golf Course Drive

The westbound left turn operates at LOS E (v/c of 0.04) during the PM peak hour. The westbound left turn volume is 3 vph. The volume on the minor street approach is too low to satisfy an AWSC or traffic signal vehicle warrant. The v/c is not a critical level (above 0.85) that will require mitigation. It is recommended this intersection remain a TWSC intersection.

8. Makena Alanui Drive at Makena Road (North)

All movements operate at LOS C or better for both peak hours.

9. Makena Alanui Drive at Makena Road (South)

The Mākena Road (South) eastbound approach will operate at LOS E (v/c of 0.52) during the PM peak hour. The eastbound approach volume is 88 vph during the PM peak hour. This intersection will not pass an 8-Hour or 4-Hour traffic signal warrant and will not pass an AWSC warrant. The v/c is not a critical level (above 0.85) that will require mitigation. No improvements are needed or recommended at this intersection.

9.5 Makena Alanui Drive at Future North Access

All movements operate at LOS B or better for both peak hours.

10. Makena Alanui Drive at Honoiki Street

All movements operate at LOS C or better for both peak hours.

11. Makena Alanui Drive at Mākena Golf Course Driveway

All movements operate at LOS B or better for both peak hours.

12. Makena Alanui Drive at Mākena Tennis Club Driveway

All movements operate at LOS B or better for both peak hours.

13. Makena Alanui Drive at Makena Keonoio Road

All movements operate at LOS B or better for both peak hours.

E. Future (2038) With Project Recommendation

Traffic signal operations should be monitored and updated as needed. A comparison of the intersection overall delay between the Future (2038) Without and With Project conditions are shown in Table 23. Most of the intersections experience slightly higher delay, except at Wailea Alanui Drive and Okolani Drive, which was analyzed as a single lane roundabout in the Future (2038) With Project condition. The overall delay at most intersections will increase but will still operate at an acceptable LOS.

Table 23: Future (2038) Without and With Project Comparison

Intersection	AM Peak				PM Peak			
	Future (2038) Without Project		Future (2038) With Project		Future (2038) Without Project		Future (2038) With Project	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1 - Pi'ilani Hwy & Kilohana Dr/Mapu Dr	A	9.6	A	9.7	B	15.6	B	16.0
2 - Pi'ilani Hwy & Okolani Dr/Mikioi Place	A	9.0	A	9.0	A	9.6	A	10.0
3 - Pi'ilani Hwy & Wailea Ike Drive	B	16.9	B	17.2	C	28.2	C	26.9
4 - Wailea Alanui Dr & Okolani Dr	C	15.3	A	6.4	D	26.0	A	8.9
5 - Wailea Alanui Dr & Wailea Ike Dr	C	24.7	C	24.7	C	27.4	C	29.2
6 - Wailea Alanui Dr & Kaukahi St	A	6.6	A	6.7	A	7.0	A	7.6
7 - Makena Alanui Dr & Wailea Golf Course Dr	-	0.9	-	0.9	-	1.0	-	1.0
8 - Makena Alanui Dr & Makena Rd (North)	-	0.4	-	0.4	-	0.3	-	0.5
9 - Makena Alanui Dr & Makena Rd (South)	-	1.1	-	1.1	-	1.9	-	2.9
9.5 - Makena Alanui Dr & Future North Access	n/a		-	2.4	n/a		-	2.9
10 - Makena Alanui Dr & Honoiki St	-	1.3	-	1.3	-	2.3	-	2.3
11 - Makena Alanui Dr & Mākena Golf Course Dwy	-	0.7	-	0.7	-	0.9	-	0.9
12 - Makena Alanui Dr & Mākena Tennis Club Dwy	-	0.7	-	0.7	-	0.5	-	0.5
13 - Makena Alanui Dr & Makena Keonoio Rd	-	1.0	-	1.0	-	2.1	-	2.1

Future With Project LOS and delay shown with recommended mitigation

It should be noted that the traffic volumes and intersection control at intersections #10-#13 are the same for the without project and with project condition, and therefore will have the same delay.

F. Future (2048) With Project LOS

Future (2048) With Project intersection LOS, v/c ratio and delay were determined for the AM and PM peak hours (see Table 24 and 25). Intersections and individual movements that operate at LOS E or worse are highlighted in yellow. Future (2048) With Project Synchro worksheets can be found in Appendix F.

Table 24: Future (2048) With Project Intersection Level of Service

Future (2048) With Project	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
1 - Pi'ilani Hwy & Kilohana Dr/Mapu Dr	**B**	**11.4**	**-**	**C**	**21.1**	**-**
Pi'ilani NB Left	C	34.8	0.49	D	50.4	0.49
Pi'ilani NB Through	A	8.9	0.51	C	21.8	0.88
Pi'ilani NB Right	A	5.7	0.01	A	8.0	0.02
Pi'ilani SB Left	D	35.8	0.75	F	84.0	0.88
Pi'ilani SB Through	A	9.5	0.66	B	13.4	0.73
Kilohana EB Left	C	25.4	0.43	C	35.0	0.65
Kilohana EB Through-Right	C	23.0	0.12	C	28.2	0.08
Mapu WB Left-Through	C	23.1	0.13	C	28.3	0.08
2 - Pi'ilani Hwy & Okolani Dr/Mikioi Place	**B**	**10.2**	**-**	**B**	**12.3**	**-**
Pi'ilani NB Left	C	24.6	0.47	C	33.1	0.56
Pi'ilani NB Through	A	8.2	0.54	B	11.9	0.82
Pi'ilani SB Left	C	22.8	0.52	C	33.0	0.57
Pi'ilani SB Through	A	9.9	0.75	A	9.7	0.73
Okolani EB Left	B	16.3	0.20	C	25.4	0.42
Okolani EB Through-Right	B	16.0	0.16	C	23.1	0.11
Mikioi WB Left-Through	B	16.3	0.21	C	23.8	0.22
3 - Pi'ilani Hwy & Wailea Ike Drive	**B**	**18.6**	**-**	**D**	**37.6**	**-**
Pi'ilani NB Left	C	33.3	0.44	D	52.8	0.53
Pi'ilani NB Through-Right	C	21.9	0.38	D	44.5	0.64
Pi'ilani SB Left	C	22.6	0.51	E	61.0	0.92
Pi'ilani SB Through	B	17.2	0.11	C	31.9	0.34
Wailea Ike EB Double Left	B	18.3	0.69	C	33.9	0.93
Wailea Ike EB Through-Right	B	14.9	0.10	B	15.0	0.16
Wailea Ike WB Left-Through	B	18.6	0.33	D	36.0	0.22
Wailea Ike WB Double Right	B	15.7	0.45	C	28.1	0.41
4 - Wailea Alanui Dr & Okolani Dr	**A**	**7.4**	**-**	**B**	**11.4**	**-**
Wailea Alanui NB approach	A	6.3	0.36	B	12.6	0.69
Wailea Alanui SB approach	A	6.4	0.16	A	7.2	0.15
Okolani EB approach	A	9.2	0.48	B	10.8	0.57
Okolani WB approach	A	6.7	0.27	B	10.1	0.36
5 - Wailea Alanui Dr & Wailea Ike Dr	**C**	**25.6**	**-**	**D**	**35.9**	**-**
Wailea Alanui NB Through	B	15.6	0.30	C	28.1	0.64
Wailea Alanui SB Left	D	47.0	0.80	E	60.9	0.90
Wailea Alanui SB Through	A	7.2	0.19	A	7.3	0.20
Wailea Ike WB Double Left	C	34.9	0.85	D	48.5	0.90

Table 25: Future (2048) With Project Intersection Level of Service (cont.)

Future (2048) With Project	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
6 - Wailea Alanui Dr & Kaukahi St	**A**	**8.0**	**-**	**A**	**9.1**	**-**
Makena Alanui NB Left-Through	A	6.7	0.43	A	8.3	0.74
Wailea Alanui SB Left	A	5.4	0.10	A	4.8	0.15
Wailea Alanui SB Through	A	8.3	0.70	A	6.6	0.60
Kaukahi EB Left-Through-Right	A	8.7	0.09	B	14.8	0.40
Kaukahi WB Left-Through	B	10.0	0.38	B	15.3	0.48
7 - Makena Alanui Dr & Wailea Golf Course Dr	**-**	**1.1**	**-**	**-**	**1.6**	**-**
Wailea Alanui SB Left	A	8.3	0.05	B	11.2	0.15
Wailea Golf Course WB Left	C	22.4	0.01	F	77.8	0.10
Wailea Golf Course WB Right	B	11.1	0.10	C	21.6	0.26
8 - Makena Alanui Dr & Makena Rd (North)	**-**	**0.4**	**-**	**-**	**0.6**	**-**
Makena Alanui NB Left	A	8.9	0.02	A	9.7	0.02
Makena Rd (North) EB Left-Right	B	14.8	0.06	D	27.5	0.19
9 - Makena Alanui Dr & Makena Rd (South)	**-**	**1.3**	**-**	**-**	**9.0**	**-**
Makena Alanui NB Left-Through	A	8.8	0.03	A	9.5	0.03
Makena Rd (South) EB Left-Right	C	18.5	0.18	F	136.5	0.96
9.5 - Makena Alanui Dr & Future North Access	**-**	**2.1**	**-**	**-**	**2.7**	**-**
Makena Alanui SB Left-Through	A	8.0	0.06	B	10.0	0.20
Future North Access WB Left-Right	B	10.5	0.16	C	17.3	0.33
10 - Makena Alanui Dr & Honoiki St	**-**	**1.2**	**-**	**-**	**3.1**	**-**
Makena Alanui NB Left-Through	A	8.5	0.02	A	8.7	0.01
Honoiki EB Left-Right	C	15.9	0.13	E	39.3	0.52
11 - Makena Alanui Dr & Mākena Golf Course Dwy	**-**	**1.1**	**-**	**-**	**1.5**	**-**
Makena Alanui SB Left-Through	A	7.7	0.03	A	8.9	0.03
Makena Golf Course WB Left-Right	B	10.4	0.07	C	16.1	0.22
12 - Makena Alanui Dr & Mākena Tennis Club Dwy	**-**	**1.3**	**-**	**-**	**1.1**	**-**
Makena Alanui SB L-T	A	7.6	0.03	A	8.6	0.03
Makena Tennis Club WB L-R	A	9.2	0.04	B	12.3	0.11
13 - Makena Alanui Dr & Makena Keonoio Rd	**-**	**0.9**	**-**	**-**	**2.4**	**-**
Makena Alanui NB L-T	A	7.9	0.01	A	8.1	0.01
Makena Keonoio EB L-R	B	10.7	0.05	C	17.8	0.29

1. Pi‘ilani Highway at Kilohana Drive/Mapu Drive

Pi‘ilani Highway at Kilohana Drive/Mapu Drive is projected to operate at LOS B and LOS C during the AM and PM peak hours, respectively. The southbound left turn is projected to operate at LOS F (v/c of 0.88) during the PM peak hour. The southbound left turn volume is 111 vph, or approximately two (2) vehicles per minute. The long delay is due to the southbound left turns having a relatively short split in comparison to the overall cycle length. The southbound left turn movement experiences long wait times between cycles but is expected to clear the intersection every cycle, similar to the existing condition. No improvements are needed or recommended at this intersection.

2. Pi‘ilani Highway at Okolani Drive/Mikioi Place

This intersection operates at LOS B during the AM and PM peak hours. All movements operate at LOS C or better. No improvements are needed or recommended at this intersection.

3. Pi'ilani Highway at Wailea Ike Drive

This intersection operates at LOS B and LOS D during the AM and PM peak hours, respectively. The southbound left is projected to operate at LOS E (v/c of 0.92). The southbound left turn volume 391 vphduring the PM peak hour. This intersection is being analyzed with split phasing. Typically, intersections with split phasing have less effective green time for each approach phase. The signal timing can be adjusted to allow for the southbound dual left turn to clear the intersection very cycle. No improvements are needed or recommended at this intersection.

4. Wailea Alanui Drive at Okolani Drive

This intersection operates at LOS A and LOS B during the AM and PM peak hours, respectively. All movements operate at LOS B or better. No improvements are needed or recommended at this intersection.

5. Wailea Alanui Drive at Wailea Ike Drive

This intersection will operate at LOS C and LOS D during the AM and PM peak hours, respectively. The southbound left turn is projected to operate at LOS E (v/c of 0.90) during the PM peak hour. The southbound left turn volume is 249 vph during the PM peak hour. The northbound through movement operates at LOS C, which suggests that some green time can be allocated from the northbound through to the southbound left turn. Signal timing should be adjusted as needed. All other movements operate at LOS D or better. No improvements are needed or recommended at this intersection.

6. Wailea Alanui Drive/Makena Alanui Drive at Kaukahi Street

This intersection will operate at LOS A during the AM and PM peak hours. All movements operate at LOS B or better. No improvements are needed or recommended at this intersection.

7. Makena Alanui Drive at Wailea Golf Course Drive

The Wailea Golf Course Drive westbound left turn will operate at LOS F (v/c of 0.10) during the PM peak hour. The westbound left turn volume is 5 vph during the PM peak hour. The volume on the minor street approach is too low to satisfy an AWSC or traffic signal vehicle warrant. All other movements operate at LOS C or better. The v/c is not a critical level (above 0.85) that will require mitigation. It is recommended this intersection remain a TWSC intersection.

8. Makena Alanui Drive at Makena Road (North)

All movements operate at LOS D or better for both peak hours.

9. Makena Alanui Drive at Makena Road (South)

The Makena Road (South) eastbound approach will operate at LOS F (v/c of 0.96) during the PM peak hour. The eastbound approach volume is 103 vph during the PM peak hour.

The Future (2048) With Project traffic volumes will not support a minor approach volume that can satisfy any traffic signal vehicle warrant or AWSC warrant. Two alternatives were analyzed including a dedicated left turn lane from Makena Alanui Drive with a refuge lane for eastbound vehicles turning onto Makena Alanui Drive, and as a single lane roundabout (or traffic circle) (see Table 26). All movements will operate at LOS D or better for both alternatives. Dedicated turn lanes are a cheaper alternative that can be installed quicker than a single lane roundabout and therefore, it is recommended that turn lanes be provided at Makena Road (South).

Table 26: Future (2048) With Project Mitigation at Makena Alanui Dr & Makena Rd (South)

Turn Lanes to/from Makena Alanui Drive	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
9 - Makena Alanui Dr & Makena Rd (South)	**-**	**1.1**	**-**	**-**	**2.0**	**-**
Makena Alanui NB Left-Through	A	8.8	0.03	A	9.5	0.03
Makena Rd (South) EB Left-Right	B	14.6	0.13	D	29.1	0.45
Single Lane Roundabout	**AM Peak**			**PM Peak**		
	LOS	**Delay**	**v/c**	**LOS**	**Delay**	**v/c**
9 - Makena Alanui Dr & Makena Rd (South)	**A**	**6.4**	**-**	**B**	**12.1**	**-**
Makena Alanui NB Approach	A	5.3	0.29	B	14.5	0.75
Makena Alanui SB Approach	A	7.2	0.45	A	10.0	0.61
Makena Rd (South) EB Approach	A	5.2	0.07	A	8.2	0.20

9.5 Makena Alanui Drive at Future North Access

All movements operate at LOS C or better for both peak hours.

10. Makena Alanui Drive at Honoiki Street

The Honoiki Street eastbound approach will operate at LOS E (v/c of 0.52) during the PM peak hour. The eastbound approach volume is 91 vph during the PM peak hour. The volume on the minor street approach is too low to satisfy any traffic signal vehicle warrant or AWSC warrant. The v/c is not a critical level (above 0.85) that will require mitigation. No improvements are needed or recommended at this intersection.

11. Makena Alanui Drive at Mākena Golf Course Driveway

All movements operate at LOS C or better for both peak hours.

12. Makena Alanui Drive at Mākena Tennis Club Driveway

All movements operate at LOS B or better for both peak hours.

13. Makena Alanui Drive at Makena Keonoio Road

All movements operate at LOS C or better for both peak hours.

G. Future (2048) With Project Recommendation

It is recommended that a dedicated left turn lane from Makena Alanui Drive to Makena Road (south) and a refuge lane for the Makena Road (South) eastbound left turn onto Makena Alanui Drive be installed when needed. This configuration will be reflected in all Future (2058) With Project conditions. Traffic signal operations should be monitored and updated as needed.

A comparison of the intersection overall delay between the Future (2048) Without and With Project conditions are shown in Table 27. The overall delay at most intersections will increase but will still operate at an acceptable LOS.

Table 27: Future (2048) Without and With Project Comparison

Intersection	AM Peak				PM Peak			
	Future (2048) Without Project		Future (2048) With Project		Future (2048) Without Project		Future (2048) With Project	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1 - Pi'ilani Hwy & Kilohana Dr/Mapu Dr	B	11.2	B	11.4	B	19.9	C	21.1
2 - Pi'ilani Hwy & Okolani Dr/Mikioi Place	B	10.0	B	10.2	B	12.1	B	12.3
3 - Pi'ilani Hwy & Wailea Ike Drive	B	18.2	B	18.6	C	33.5	D	37.6
4 - Wailea Alanui Dr & Okolani Dr	A	6.9	A	7.4	B	10.1	B	11.4
5 - Wailea Alanui Dr & Wailea Ike Dr	C	25.9	C	25.6	C	30.6	D	35.9
6 - Wailea Alanui Dr & Kaukahi St	A	7.4	A	8.0	A	7.8	A	9.1
7 - Makena Alanui Dr & Wailea Golf Course Dr	-	1.3	-	1.1	-	1.6	-	1.6
8 - Makena Alanui Dr & Makena Rd (North)	-	0.4	-	0.4	-	0.4	-	0.6
9 - Makena Alanui Dr & Makena Rd (South)	-	1.2	-	1.1	-	2.8	-	2.0
9.5 - Makena Alanui Dr & Future North Access	n/a		-	2.1	n/a		-	2.7
10 - Makena Alanui Dr & Honoiki St	-	1.2	-	1.2	-	2.7	-	3.1
11 - Makena Alanui Dr & Mākena Golf Course Dwy	-	0.7	-	1.1	-	0.9	-	1.5
12 - Makena Alanui Dr & Mākena Tennis Club Dwy	-	0.7	-	1.3	-	0.5	-	1.1
13 - Makena Alanui Dr & Makena Keonoio Rd	-	0.9	-	0.9	-	2.4	-	2.4

Future With Project LOS and delay shown with recommended mitigation

It should be noted that the traffic volumes and intersection control at intersection #13 is the same for the without project and with project condition, and therefore will have the same delay.

H. Future (2058) With Project LOS

Future (2058) With Project intersection LOS, v/c ratio and delay were determined for the AM and PM peak hours (see Table 28 and 29). Intersections and individual movements that operate at LOS E or worse are highlighted in yellow. Future (2058) With Project Synchro worksheets can be found in Appendix F.

1. Pi‘ilani Highway at Kilohana Drive/Mapu Drive

Pi‘ilani Highway at Kilohana Drive/Mapu Drive is projected to operate at LOS B and LOS C during the AM and PM peak hours, respectively. The southbound left turn is projected to operate at LOS F (v/c of 0.88) during the PM peak hour. The southbound left turn volume is 111 vph, or approximately two (2) vehicles per minute. This movement is expected to clear the intersection every cycle. No improvements are needed or recommended at this intersection.

2. Pi‘ilani Highway at Okolani Drive/Mikioi Place

This intersection operates at LOS B during the AM and PM peak hours. All movements operate at LOS C or better. No improvements are needed or recommended at this intersection.

3. Pi‘ilani Highway at Wailea Ike Drive

Pi‘ilani Highway at Wailea Ike Drive is projected to operate at LOS B and LOS D during the AM and PM peak hours, respectively. The northbound left and southbound left is projected to operate at LOS E (v/c of 0.56 and 0.88, respectively) during the PM peak hour. The northbound and southbound left turn has a volume of 21 vph and 391, respectively. The northbound queue is expected to clear every cycle. The southbound dual left turn should be monitored, and the traffic signal timing should be adjusted as needed.

Table 28: Future (2058) With Project Intersection Level of Service

Future (2058) With Project	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
1 - Pi'ilani Hwy & Kilohana Dr/Mapu Dr	**B**	**11.9**	**-**	**C**	**25.5**	**-**
Pi'ilani NB Left	C	34.8	0.49	D	50.4	0.49
Pi'ilani NB Through	A	9.3	0.55	C	30.3	0.96
Pi'ilani NB Right	A	5.7	0.01	A	8.0	0.02
Pi'ilani SB Left	D	35.8	0.75	F	84.0	0.88
Pi'ilani SB Through	B	10.6	0.73	B	15.0	0.79
Kilohana EB Left	C	25.4	0.43	C	35.0	0.65
Kilohana EB Through-Right	C	23.0	0.12	C	28.2	0.08
Mapu WB Left-Through	C	23.1	0.13	C	28.3	0.09
2 - Pi'ilani Hwy & Okolani Dr/Mikioi Place	**B**	**10.1**	**-**	**B**	**13.1**	**-**
Pi'ilani NB Left	C	26.8	0.48	D	36.8	0.58
Pi'ilani NB Through	A	7.8	0.53	B	13.0	0.85
Pi'ilani SB Left	C	25.2	0.53	D	36.8	0.59
Pi'ilani SB Through	A	9.7	0.75	B	10.1	0.75
Okolani EB Left	B	18.4	0.22	C	28.4	0.44
Okolani EB Through-Right	B	18.0	0.17	C	25.9	0.12
Mikioi WB Left-Through	B	18.4	0.23	C	26.7	0.24
3 - Pi'ilani Hwy & Wailea Ike Drive	**B**	**19.1**	**-**	**D**	**40.8**	**-**
Pi'ilani NB Left	C	34.5	0.45	E	65.4	0.56
Pi'ilani NB Through-Right	C	23.1	0.40	D	56.6	0.69
Pi'ilani SB Left	C	23.7	0.53	E	63.1	0.88
Pi'ilani SB Through	B	18.2	0.11	D	39.4	0.34
Wailea Ike EB Double Left	B	18.3	0.71	D	35.7	0.93
Wailea Ike EB Through-Right	B	14.5	0.09	B	15.3	0.14
Wailea Ike WB Left-Through	B	19.5	0.34	D	45.5	0.24
Wailea Ike WB Double Right	B	16.6	0.46	D	35.1	0.42
4 - Wailea Alanui Dr & Okolani Dr	**A**	**7.9**	**-**	**B**	**12.5**	**-**
Wailea Alanui NB approach	A	6.7	0.40	B	13.9	0.73
Wailea Alanui SB approach	A	6.7	0.17	A	7.6	0.16
Okolani EB approach	A	9.7	0.50	B	12.0	0.61
Okolani WB approach	A	7.1	0.29	B	11.0	0.40
5 - Wailea Alanui Dr & Wailea Ike Dr	**C**	**26.5**	**-**	**D**	**35.9**	**-**
Wailea Alanui NB Through	B	17.5	0.35	C	32.8	0.74
Wailea Alanui SB Left	D	47.9	0.81	E	60.1	0.90
Wailea Alanui SB Through	A	8.2	0.20	A	8.3	0.23
Wailea Ike WB Double Left	D	35.2	0.86	D	45.4	0.91
6 - Wailea Alanui Dr & Kaukahi St	**A**	**8.4**	**-**	**B**	**10.5**	**-**
Makena Alanui NB Left-Through	A	7.0	0.48	B	10.0	0.79
Wailea Alanui SB Left	A	5.8	0.15	A	5.8	0.24
Wailea Alanui SB Through	A	8.7	0.73	A	7.1	0.64
Kaukahi EB Left-Through-Right	A	9.3	0.09	B	17.4	0.42
Kaukahi WB Left-Through	B	10.9	0.40	B	18.5	0.53

Table 29: Future (2058) With Project Intersection Level of Service (cont.)

Future (2058) With Project	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
7 - Makena Alanui Dr & Wailea Golf Course Dr	-	**1.4**	-	-	**2.2**	-
Wailea Alanui SB Left	A	8.4	0.07	B	12.1	0.21
Wailea Golf Course WB Left	D	26.1	0.01	F	115.5	0.15
Wailea Golf Course WB Right	B	11.8	0.15	D	27.2	0.38
8 - Makena Alanui Dr & Makena Rd (North)	-	**0.5**	-	-	**0.7**	-
Makena Alanui NB Left	A	9.1	0.02	B	10.0	0.03
Makena Rd (North) EB Left-Right	C	15.8	0.07	D	32.5	0.23
9 - Makena Alanui Dr & Makena Rd (South)	-	**1.1**	-	-	**2.2**	-
Makena Alanui NB Left-Through	A	9.0	0.04	A	9.8	0.03
Makena Rd (South) EB Left-Right	C	15.3	0.14	D	34.0	0.51
9.5 - Makena Alanui Dr & Future North Access	-	**2.0**	-	-	**2.7**	-
Makena Alanui SB Left-Through	A	8.1	0.06	B	10.5	0.22
Future North Access WB Left-Right	B	10.9	0.17	C	19.3	0.37
10 - Makena Alanui Dr & Honoiki St	-	**1.2**	-	-	**4.2**	-
Makena Alanui NB Left-Through	A	8.7	0.03	A	8.9	0.01
Honoiki EB Left-Right	C	17.8	0.15	F	58.7	0.64
11 - Makena Alanui Dr & Mākena Golf Course Dwy	-	**1.1**	-	-	**1.5**	-
Makena Alanui SB Left-Through	A	7.9	0.03	A	9.2	0.04
Makena Golf Course WB Left-Right	B	11.0	0.08	C	19.5	0.28
12 - Makena Alanui Dr & Mākena Tennis Club Dwy	-	**1.2**	-	-	**1.0**	-
Makena Alanui SB L-T	A	7.7	0.03	A	8.8	0.03
Makena Tennis Club WB L-R	A	9.5	0.05	B	13.3	0.13
13 - Makena Alanui Dr & Makena Keonoio Rd	-	**0.9**	-	-	**2.6**	-
Makena Alanui NB L-T	A	8.0	0.01	A	8.4	0.01
Makena Keonoio EB L-R	B	11.4	0.06	C	22.3	0.36
14 - Makena Alanui Dr & Future South Access	-	**1.6**	-	-	**1.1**	-
Makena Alanui SB L-T	A	7.5	0.02	A	8.1	0.04
Makena Keonoio WB L-R	A	9.0	0.05	B	10.5	0.07

4. Wailea Alanui Drive at Okolani Drive

This intersection operates at LOS A and LOS B during the AM and PM peak hours, respectively. All movements operate at LOS B or better. No improvements are needed or recommended at this intersection.

5. Wailea Alanui Drive at Wailea Ike Drive

This intersection will operate at LOS C and LOS D during the AM and PM peak hours. The southbound left turn is projected to operate at LOS E (v/c of 0.90) during the PM peak hour. The southbound left turn volume is 249 vph during the PM peak hour. The northbound through movement operates at LOS C, which suggests that some green time can be allocated from the northbound through to the southbound left turn. Signal timing should be adjusted as needed. All other movements operate at LOS D or better. No improvements are needed or recommended at this intersection.

6. Wailea Alanui Drive/Makena Alanui Drive at Kaukahi Street

This intersection will operate at LOS A and LOS B during the AM and PM peak hours, respectively. All movements operate at LOS B or better. No improvements are needed or recommended at this intersection.

7. Makena Alanui Drive at Wailea Golf Course Drive

The Wailea Golf Course Drive westbound left turn will operate at LOS F (v/c of 0.15) during the PM peak hour. The westbound left turn volume is 5 vph during the PM peak hour. The volume on the minor street approach is too low to satisfy any traffic signal vehicle warrant. The v/c is not a critical level (above 0.85) that will require mitigation. It is recommended this intersection remain a TWSC intersection.

8. Makena Alanui Drive at Makena Road (North)

All movements operate at LOS D or better for both peak hours.

9. Makena Alanui Drive at Makena Road (South)

All movements operate at LOS D or better for both peak hours.

9.5 Makena Alanui Drive at Future North Access

All movements operate at LOS C or better for both peak hours.

10. Makena Alanui Drive at Honoiki Street

The Honoiki Street eastbound approach will operate at LOS F (v/c of 0.64) during the PM peak hour. The eastbound approach volume is 91 vph during the PM peak hour.

The Future (2058) With Project traffic volumes will not support a minor approach volume that can satisfy any traffic signal vehicle warrant or AWSC warrant. Two alternatives were analyzed including a dedicated left turn lane from Makena Alanui Drive with a refuge lane for eastbound vehicles turning onto Makena Alanui Drive, and as a single lane roundabout (see Table 30). All movements will operate at LOS D or better for both alternatives. Dedicated turn lanes are a cheaper alternative that can be installed quicker than a single lane roundabout and therefore it is recommended that turn lanes be provided at Honoiki Street.

Table 30: Future (2058) With Project Mitigation at Makena Alanui Dr & Honoiki St

Turn Lanes to/from Makena Alanui Drive	AM Peak			PM Peak		
	LOS	Delay	v/c	LOS	Delay	v/c
10 - Makena Alanui Dr & Honoiki St	**-**	**1.0**	**-**	**-**	**2.2**	**-**
Makena Alanui NB Left-Through	A	8.7	0.03	A	9.8	0.03
Honoiki EB Left-Right	B	14.1	0.12	D	34.0	0.51
Single Lane Roundabout	**AM Peak**			**PM Peak**		
	LOS	**Delay**	**v/c**	**LOS**	**Delay**	**v/c**
10 - Makena Alanui Dr & Honoiki St	**A**	**6.0**	**-**	**A**	**9.1**	**-**
Makena Alanui NB Approach	A	4.8	0.24	B	10.7	0.62
Makena Alanui SB Approach	A	6.7	0.42	A	7.7	0.49
Honoiki EB Approach	A	5.0	0.06	A	6.2	0.14

11. Makena Alanui Drive at Mākena Golf Course Driveway

All movements operate at LOS C or better for both peak hours.

12. Makena Alanui Drive at Mākena Tennis Club Driveway

All movements operate at LOS B or better for both peak hours.

13. Makena Alanui Drive at Makena Keonoio Road

All movements operate at LOS C or better for both peak hours.

14. Makena Alanui Drive at Future South Access

All movements operate at LOS B or better for both peak hours.

I. Future (2058) With Project Recommendation

It is recommended that a dedicated left turn lane from Makena Alanui Drive to Honoiki Street and a refuge lane for the Honoiki Street eastbound left turn onto Makena Alanui Drive be installed when needed. Traffic signal operations should be monitored and updated as needed.

A comparison of the intersection overall delay between the Future (2058) Without and With Project conditions are shown in Table 31. The overall delay at most intersections will increase but will still operate at an acceptable LOS.

Table 31: Future (2058) Without and With Project Comparison

Intersection	AM Peak				PM Peak			
	Future (2058) Without Project		Future (2058) With Project		Future (2058) Without Project		Future (2058) With Project	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1 - Pi'ilani Hwy & Kilohana Dr/Mapu Dr	B	11.6	B	11.9	C	22.3	C	25.5
2 - Pi'ilani Hwy & Okolani Dr/Mikioi Place	B	10.5	B	10.1	B	12.1	B	13.1
3 - Pi'ilani Hwy & Wailea Ike Drive	B	18.7	B	19.1	D	37.5	D	40.8
4 - Wailea Alanui Dr & Okolani Dr	A	7.3	A	7.9	B	10.7	B	12.5
5 - Wailea Alanui Dr & Wailea Ike Dr	C	26.0	C	26.5	C	32.4	D	35.9
6 - Wailea Alanui Dr & Kaukahi St	A	7.5	A	8.4	A	8.1	B	10.5
7 - Makena Alanui Dr & Wailea Golf Course Dr	-	1.6	-	1.4	-	2.0	-	2.2
8 - Makena Alanui Dr & Makena Rd (North)	-	0.4	-	0.5	-	0.4	-	0.7
9 - Makena Alanui Dr & Makena Rd (South)	-	1.1	-	1.1	-	3.1	-	2.2
9.5 - Makena Alanui Dr & Future North Access	n/a		-	2.0	n/a		-	2.7
10 - Makena Alanui Dr & Honoiki St	-	1.2	-	1.0	-	3.0	-	2.2
11 - Makena Alanui Dr & Mākena Golf Course Dwy	-	0.7	-	1.1	-	0.9	-	1.5
12 - Makena Alanui Dr & Mākena Tennis Club Dwy	-	0.7	-	1.2	-	0.5	-	1.0
13 - Makena Alanui Dr & Makena Keonoio Rd	-	0.9	-	0.9	-	2.4	-	2.6
14 - Makena Alanui Dr & Future South Access	n/a		-	1.6	n/a		-	1.1

Future With Project LOS and delay shown with recommended mitigation

V. SUMMARY

Mākena Mauka is a proposed low-density master planned residential community within the Makena area of South Maui with full occupancy expected by 2058. The applicant's current vision for the Mākena Mauka land plan includes 652 housing units, including 109 onsite residential workforce housing units, 180 single-family market-value units, 363 multi-family market-value units, and approximately 135,000 SF of operational support buildings, which include golf maintenance, staff offices, restaurants, back of house, golf operations and other uses; within the approximately 1,043-acre total project area which includes approximately 473 acres of parcels proposed for residential development. The workforce housing is expected to be completed within the first 10 years of construction, with the remaining single-family homes and multi-family homes being constructed in equal amounts over three 10-year periods (10, 20, and 30 years into the future), aligning with years 2038, 2048, and 2058. Future internal bicycle and pedestrian facilities are still being designed with the goal to connect to the existing bike lanes and sidewalk on the makai side of Makena Alanui Drive. Access to the project area will be provided from Makena Alanui Road with an internal roadway network connecting to the individual communities within the project. Plans for a secondary access are also being planned but have not yet been finalized. This TIAR evaluated existing conditions and assessed impacts in the surrounding areas as a result of the proposed development for scenarios 10, 20, and 30-years into the future after construction (2038, 2048, and 2058). Future year conditions were evaluated with and without the project.

The following improvements are anticipated to be completed by others to improve traffic operations at the study intersections prior to the construction of Mākena Mauka, and were therefore included in the Future Without Project conditions:

- Widen Pi‘ilani Highway
    - Widen Pi‘ilani Highway from two lanes to four lanes from Kilohana Drive to Wailea Ike Drive, including improvements to Kilohana Drive and Wailea Ike Drive. This is part of *Exhibit "B"* in the Honua‘ula master plan. As one of the conditions mentioned in *Exhibit "B"*, the Honua‘ula development is responsible for the widening of Pi‘ilani Highway and improvements to Kilohana Drive and Wailea Ike Drive. This is expected to be completed by HDOT with the surrounding developments contributing through fair share agreements.
        - Mākena Mauka is responsible for a financial contribution to this project pursuant to the 2008 CIZ conditions of approval.
- Wailea Alanui Drive at Wailea Ike Drive (Study Intersection #3)
    - Add a second northbound right turn lane and a second westbound left turn lane at Wailea Alanui Drive and Wailea Ike Drive. As one of the conditions mentioned in *Exhibit "B"*, the Honua‘ula development is responsible for this improvement. This improvement is expected to be completed with the start of the Honua‘ula construction.
- Wailea Alanui Drive/Makena Alanui Drive at Kaukahi Street (Study Intersection #6)
    - Signalize Wailea Alanui Drive/Makena Alanui Drive at Kaukahi Street. As one of the conditions mentioned in *Exhibit "B"*, the Honua‘ula development is responsible for the signalization of Wailea Alanui Drive at Kaukahi Street when warranted. This improvement is expected to be completed with the start of the Honua‘ula construction.
- Wailea Alanui Drive at Okolani Drive (Study Intersection #4)

  - This intersection has been identified in the *2025 Ledcor Wailea Resort Final EIS* as an intersection that should consider a single lane roundabout or other stop control modifications. The intersection should be monitored to determine if a traffic signal, roundabout, or stop modifications are warranted.
- Adjust the signal timing and phases at various intersections as needed.

The following Future With Project intersection improvements are recommended to be considered with this project to improve traffic conditions in advance of the future year they were analyzed for:

- Makena Alanui Drive at Makena Road (South) (Study Intersection #9)
  - A refuge lane for the eastbound left turn from Makena Road (South) onto Makena Alanui Drive is recommended in Future (2048) With Project.
- Makena Alanui Drive at Honoiki Street (Study Intersection #10)
  - A refuge lane for the eastbound left turn from Honoiki Street onto Makena Alanui Drive is recommended in Future (2058) With Project.
- Adjust the signal timing and phases at various intersections as needed.

Missing sidewalk segments on Makena Alanui Drive just south of Makena Road (south) are recommended to be installed and connect to the existing sidewalk facilities.

A summary of the improvements at the study intersections are shown in Figure 25.

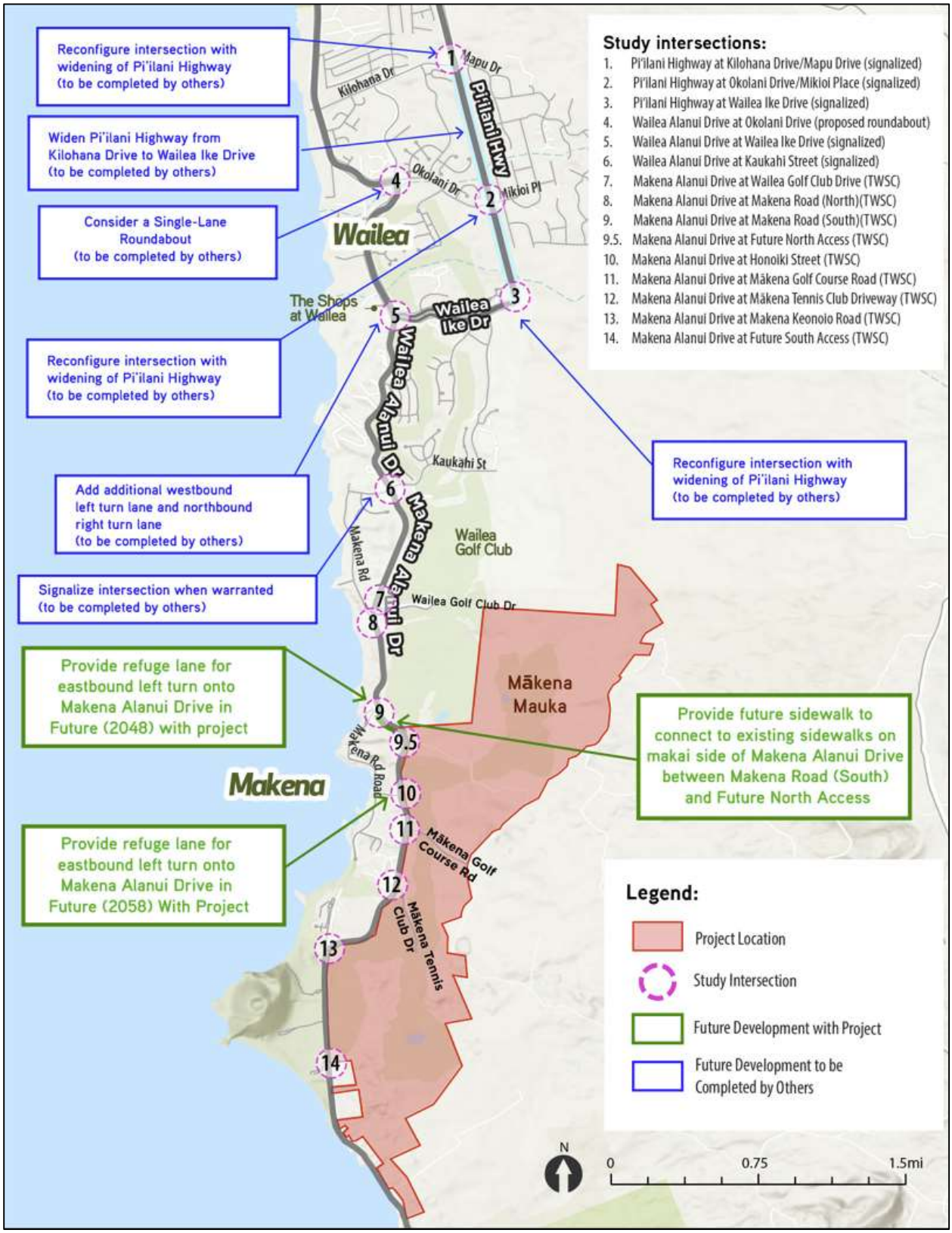

Figure 25: Recommended Improvements

VI. REFERENCES

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Appendix A
Existing 2024 Data Collection, Existing Bus Data

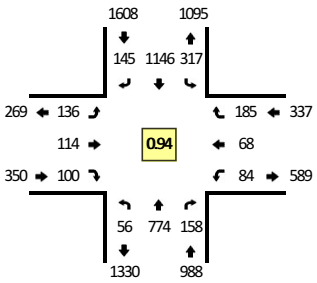
Type of peak hour being reported: User-Defined

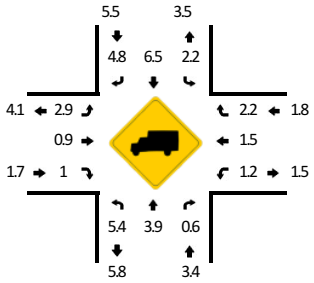
Method for determining peak hour: Total Entering Volume

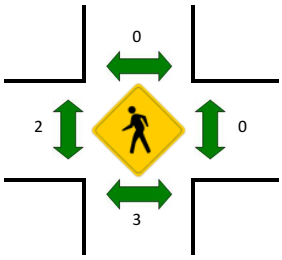
LOCATION: 1.Piilani Hwy -- East Lipoa St/Lipoa Pkwy
CITY/STATE: Kihei, HI

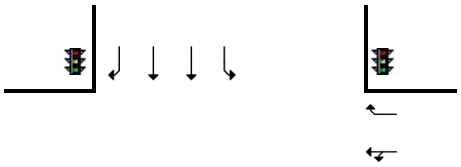
QC JOB #: 16267401
DATE: Thu, May 9 2024

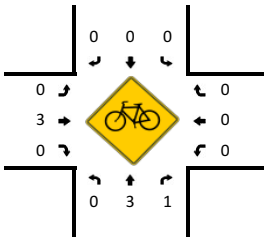
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:15 AM -- 8:30 AM

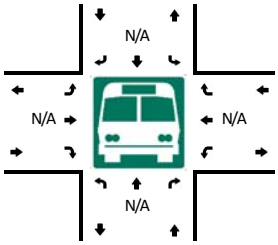


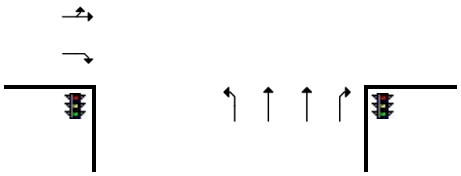


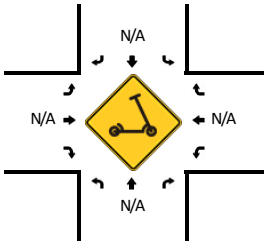












15-Min Count Period Beginning At	1.Piilani Hwy (Northbound)				1.Piilani Hwy (Southbound)				East Lipoa St/Lipoa Pkwy (Eastbound)				East Lipoa St/Lipoa Pkwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	4	87	4	0	5	168	9	0	12	4	5	0	5	3	9	0	315	
6:15 AM	6	118	2	0	12	222	13	0	11	5	3	0	0	1	7	0	400	
6:30 AM	3	170	9	0	12	267	16	0	11	3	5	0	3	1	15	0	515	
6:45 AM	7	146	17	0	20	270	27	0	12	7	12	0	2	4	17	0	541	1771
7:00 AM	6	173	19	0	27	219	28	0	32	5	14	0	3	1	11	0	538	1994
7:15 AM	11	207	31	0	54	316	51	0	30	14	18	0	11	8	24	0	775	2369
7:30 AM	7	197	28	0	49	299	69	0	53	14	25	0	11	11	33	0	796	2650
7:45 AM	15	197	48	0	113	292	31	0	25	29	29	0	17	13	38	0	847	2956
8:00 AM	12	157	49	0	77	244	14	0	36	44	24	0	31	29	54	0	771	3189
8:15 AM	22	223	33	0	78	311	31	0	22	27	22	0	25	15	60	0	869	3283
8:30 AM	20	192	24	0	46	285	26	0	21	9	21	0	22	16	29	0	711	3198
8:45 AM	18	203	14	0	24	274	25	0	25	7	19	0	9	4	13	0	635	2986

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	88	892	132	0	312	1244	124	0	88	108	88	0	100	60	240	0	3476
Heavy Trucks	4	44	0		0	68	4		8	0	0		0	0	4		132
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:02 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

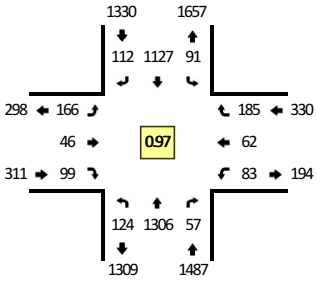
Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: 1.Piilani Hwy -- East Lipoa St/Lipoa Pkwy
CITY/STATE: Kihei, HI

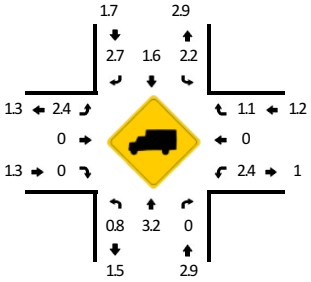
QC JOB #: 16267402
DATE: Thu, May 9 2024

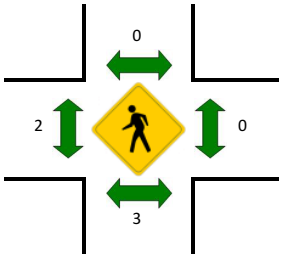
Peak-Hour: 3:30 PM -- 4:30 PM
Peak 15-Min: 4:00 PM -- 4:15 PM

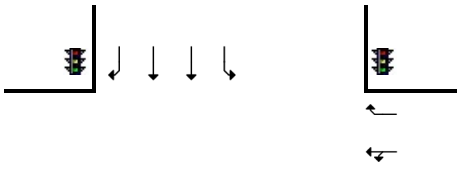


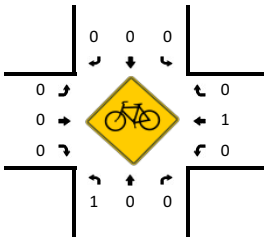


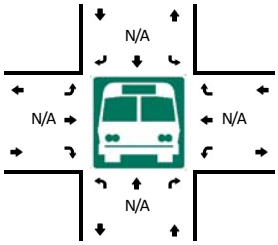
TRUE DATA TO IMPROVE MOBILITY

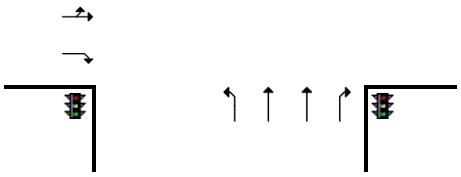


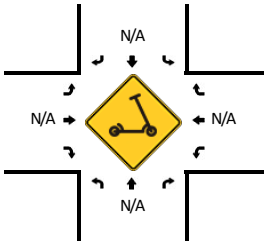












15-Min Count Period Beginning At	1.Piilani Hwy (Northbound)				1.Piilani Hwy (Southbound)				East Lipoa St/Lipoa Pkwy (Eastbound)				East Lipoa St/Lipoa Pkwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	19	243	13	0	26	207	24	0	40	11	35	0	13	9	22	0	662	
12:15 PM	24	201	11	0	19	193	24	0	42	16	21	0	10	9	20	0	590	
12:30 PM	20	280	12	0	23	273	39	0	28	8	17	0	4	15	29	0	748	
12:45 PM	26	210	10	0	25	218	23	0	41	22	29	0	12	10	18	0	644	2644
1:00 PM	27	245	10	0	25	226	21	0	26	9	24	0	15	7	32	0	667	2649
1:15 PM	27	252	21	0	23	236	23	0	41	20	15	0	18	11	19	0	706	2765
1:30 PM	21	219	9	0	30	248	29	0	36	18	20	0	7	6	24	0	667	2684
1:45 PM	26	243	21	0	43	240	27	0	29	18	10	0	14	14	42	0	727	2767
2:00 PM	23	224	26	0	39	253	32	0	46	21	30	0	9	4	28	0	735	2835
2:15 PM	22	211	22	0	46	258	27	0	26	31	35	0	27	16	61	0	782	2911
2:30 PM	27	218	23	0	26	236	19	0	42	13	32	0	43	22	98	0	799	3043
2:45 PM	43	308	9	0	34	303	15	0	45	19	40	0	14	19	50	0	899	3215
3:00 PM	27	267	14	0	35	314	23	0	45	17	23	0	25	16	63	0	869	3349
3:15 PM	41	309	14	0	17	246	23	0	49	11	23	0	20	9	45	0	807	3374
3:30 PM	24	342	16	0	32	269	27	0	39	16	24	0	19	15	34	0	857	3432
3:45 PM	35	285	20	0	26	298	33	0	48	14	25	0	20	13	40	0	857	3390
4:00 PM	27	331	10	0	20	294	26	0	39	10	20	0	24	19	69	0	889	3410
4:15 PM	38	348	11	0	13	266	26	0	40	6	30	0	20	15	42	0	855	3458
4:30 PM	27	339	10	0	13	265	18	0	44	11	17	0	18	12	35	0	809	3410
4:45 PM	29	291	10	0	21	242	23	0	45	7	21	0	12	12	15	0	728	3281

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	108	1324	40	0	80	1176	104	0	156	40	80	0	96	76	276	0	3556
Heavy Trucks	0	56	0		0	12	4		12	0	0		0	0	4		88
Buses																	
Pedestrians		4				0				4				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:04 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

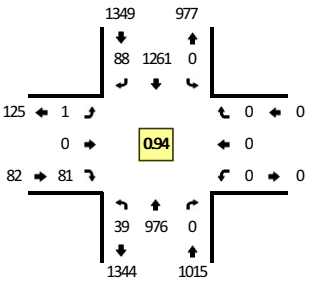
Type of peak hour being reported: User-Defined

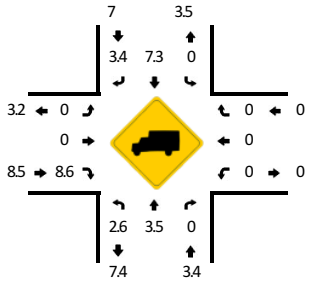
Method for determining peak hour: Total Entering Volume

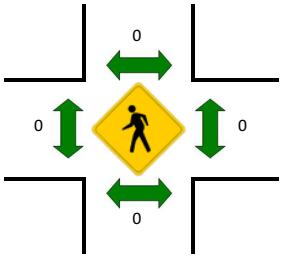
LOCATION: 2.Piilani Hwy -- East Welakahao Rd (North)
CITY/STATE: Kihei, HI

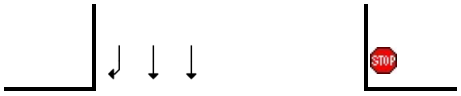
QC JOB #: 16267403
DATE: Thu, May 9 2024

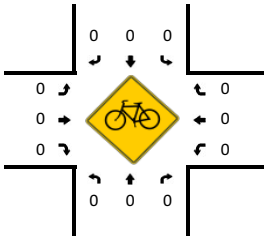
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:15 AM -- 8:30 AM

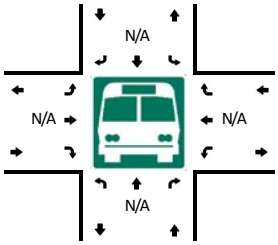




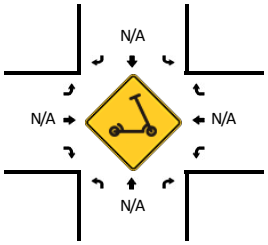












15-Min Count Period Beginning At	2.Piilani Hwy (Northbound)				2.Piilani Hwy (Southbound)				East Welakahao Rd (North) (Eastbound)				East Welakahao Rd (North) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	95	0	0	0	170	8	0	0	0	5	0	0	0	0	0	278	
6:15 AM	3	131	0	0	0	212	11	0	0	0	3	0	0	0	0	0	360	
6:30 AM	8	185	0	0	0	240	10	0	1	0	4	0	0	0	0	0	448	
6:45 AM	19	179	0	0	0	274	22	0	0	0	12	0	0	0	0	0	506	1592
7:00 AM	7	213	0	0	0	253	10	0	0	0	6	0	0	0	0	0	489	1803
7:15 AM	6	252	0	0	0	303	21	0	0	0	11	0	0	0	0	0	593	2036
7:30 AM	5	225	0	0	0	337	18	0	0	0	16	0	0	0	0	0	601	2189
7:45 AM	11	257	0	2	0	284	25	0	0	0	22	0	0	0	0	0	601	2284
8:00 AM	7	233	0	0	0	303	23	0	1	0	23	0	0	0	0	0	590	2385
8:15 AM	14	261	0	0	0	337	22	0	0	0	20	0	0	0	0	0	654	2446
8:30 AM	8	230	0	0	0	259	29	0	0	0	20	0	0	0	0	0	546	2391
8:45 AM	18	235	0	0	0	319	24	0	0	0	19	0	0	0	0	0	615	2405

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	56	1044	0	0	0	1348	88	0	0	0	80	0	0	0	0	0	2616
Heavy Trucks	0	44	0		0	68	4		0	0	4		0	0	0		120
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:05 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

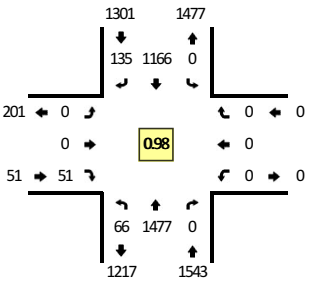
Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

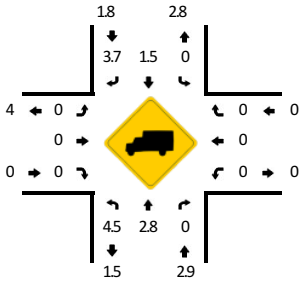
LOCATION: 2.Piilani Hwy -- East Welakahao Rd (North)
CITY/STATE: Kihei, HI

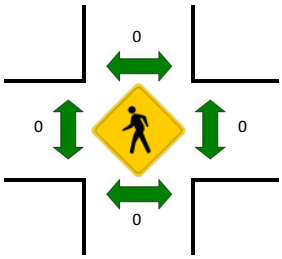
QC JOB #: 16267404
DATE: Thu, May 9 2024

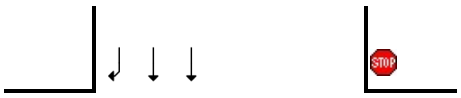
Peak-Hour: 3:30 PM -- 4:30 PM
Peak 15-Min: 4:00 PM -- 4:15 PM

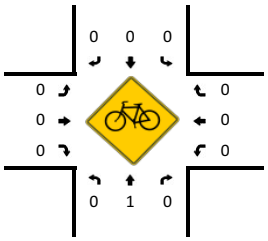


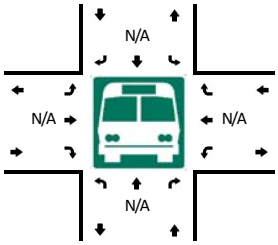




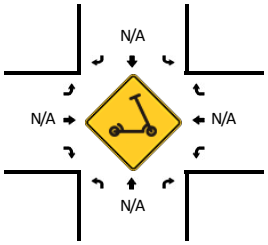












15-Min Count Period Beginning At	2.Piilani Hwy (Northbound)				2.Piilani Hwy (Southbound)				East Welakahao Rd (North) (Eastbound)				East Welakahao Rd (North) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	11	267	0	0	0	227	28	0	0	0	17	0	0	0	0	0	550	
12:15 PM	9	243	0	0	0	211	14	0	1	0	7	0	0	0	0	0	485	
12:30 PM	8	294	0	0	0	249	26	0	0	0	14	0	0	0	0	0	591	
12:45 PM	10	247	0	0	0	232	28	0	0	0	16	0	0	0	0	0	533	2159
1:00 PM	13	289	0	0	0	258	23	0	0	0	9	0	0	0	0	0	592	2201
1:15 PM	22	290	0	0	0	204	25	0	0	0	17	0	0	0	0	0	558	2274
1:30 PM	14	266	0	0	0	277	39	0	0	0	14	0	0	0	0	0	610	2293
1:45 PM	11	270	0	0	0	209	17	0	1	0	13	0	0	0	0	0	521	2281
2:00 PM	11	281	0	0	0	294	34	0	0	0	23	0	0	0	0	0	643	2332
2:15 PM	20	321	0	0	0	307	16	0	0	0	20	0	0	0	0	0	684	2458
2:30 PM	18	300	0	1	0	285	24	0	0	0	19	0	0	0	0	0	647	2495
2:45 PM	29	289	0	0	0	323	33	0	0	0	20	0	0	0	0	0	694	2668
3:00 PM	11	300	0	0	0	331	32	0	0	0	16	0	0	0	0	0	690	2715
3:15 PM	13	384	0	0	0	265	23	0	0	0	17	0	0	0	0	0	702	2733
3:30 PM	18	377	0	0	0	298	19	0	0	0	11	0	0	0	0	0	723	2809
3:45 PM	13	341	0	0	0	301	32	0	0	0	13	0	0	0	0	0	700	2815
4:00 PM	15	376	0	0	0	299	39	0	0	0	13	0	0	0	0	0	742	2867
4:15 PM	20	383	0	0	0	268	45	0	0	0	14	0	0	0	0	0	730	2895
4:30 PM	10	385	0	0	0	261	39	0	0	0	17	0	0	0	0	0	712	2884
4:45 PM	21	309	0	0	0	274	26	0	0	0	17	0	0	0	0	0	647	2831

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	60	1504	0	0	0	1196	156	0	0	0	52	0	0	0	0	0	2968
Heavy Trucks	4	52	0		0	12	4		0	0	0		0	0	0		72
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:05 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

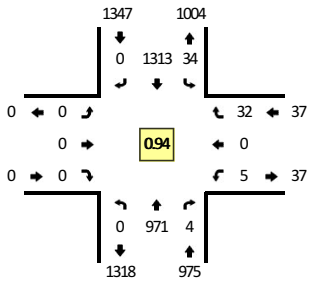
Type of peak hour being reported: User-Defined

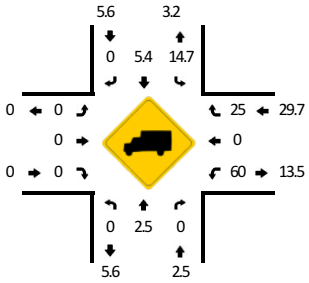
Method for determining peak hour: Total Entering Volume

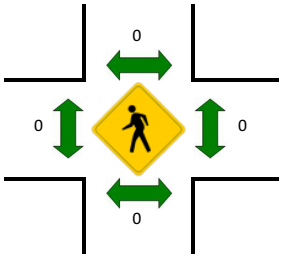
LOCATION: 3.Piilani Hwy -- East Welakahao Rd (South)
CITY/STATE: Kihei, HI

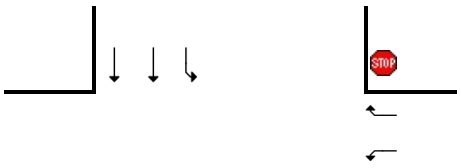
QC JOB #: 16267405
DATE: Thu, May 9 2024

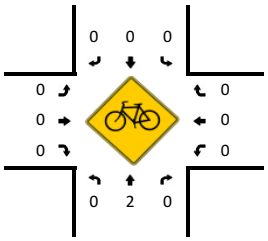
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:15 AM -- 8:30 AM

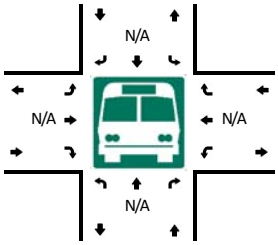




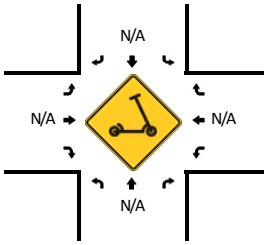












15-Min Count Period Beginning At	3.Piilani Hwy (Northbound)				3.Piilani Hwy (Southbound)				East Welakahao Rd (South) (Eastbound)				East Welakahao Rd (South) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	92	0	0	6	159	0	0	0	0	0	0	0	0	2	0	259	
6:15 AM	0	136	0	0	8	189	0	1	0	0	0	0	1	0	0	0	335	
6:30 AM	0	185	3	0	12	214	0	0	0	0	0	0	0	0	4	0	418	
6:45 AM	0	182	7	0	22	266	0	0	0	0	0	0	1	0	6	0	484	1496
7:00 AM	0	210	0	0	11	259	0	0	0	0	0	0	0	0	5	0	485	1722
7:15 AM	0	248	0	0	10	299	0	0	0	0	0	0	2	0	8	0	567	1954
7:30 AM	0	217	1	0	6	350	0	0	0	0	0	0	1	0	6	0	581	2117
7:45 AM	0	256	0	0	10	283	0	1	0	0	0	0	0	0	11	0	561	2194
8:00 AM	0	235	2	0	9	335	0	0	0	0	0	0	2	0	6	0	589	2298
8:15 AM	0	263	1	0	8	345	0	0	0	0	0	0	2	0	9	0	628	2359
8:30 AM	0	233	2	0	6	265	0	2	0	0	0	0	0	0	7	0	515	2293
8:45 AM	0	240	2	0	16	334	0	0	0	0	0	0	1	0	8	0	601	2333

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1052	4	0	32	1380	0	0	0	0	0	0	8	0	36	0	2512
Heavy Trucks	0	32	0		8	64	0		0	0	0		4	0	8		116
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:05 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

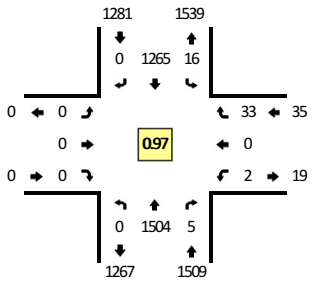
Type of peak hour being reported: User-Defined

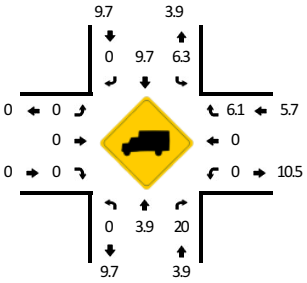
Method for determining peak hour: Total Entering Volume

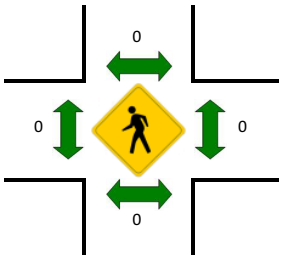
LOCATION: 3.Piilani Hwy -- East Welakahao Rd (South)
CITY/STATE: Kihei, HI

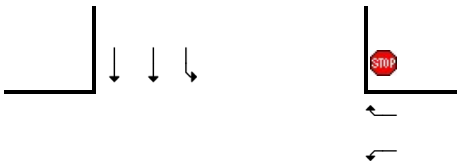
QC JOB #: 16267406
DATE: Thu, May 9 2024

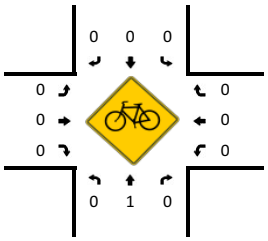
Peak-Hour: 3:30 PM -- 4:30 PM
Peak 15-Min: 4:00 PM -- 4:15 PM

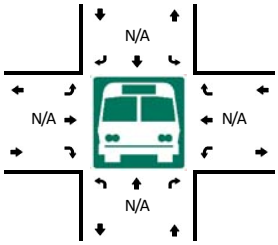




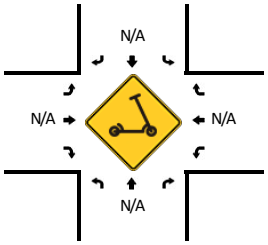












15-Min Count Period Beginning At	3.Piilani Hwy (Northbound)				3.Piilani Hwy (Southbound)				East Welakahao Rd (South) (Eastbound)				East Welakahao Rd (South) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	0	268	0	0	2	216	0	0	0	0	0	0	2	0	8	0	496	
12:15 PM	0	239	2	0	9	229	0	0	0	0	0	0	3	0	9	0	491	
12:30 PM	0	284	1	0	10	239	0	0	0	0	0	0	3	0	7	0	544	
12:45 PM	0	262	1	0	5	241	0	0	0	0	0	0	0	0	5	0	514	2045
1:00 PM	0	278	1	0	7	263	0	1	0	0	0	0	1	0	8	0	559	2108
1:15 PM	0	306	1	0	6	211	0	0	0	0	0	0	2	0	6	0	532	2149
1:30 PM	0	271	0	0	8	284	0	1	0	0	0	0	0	0	11	0	575	2180
1:45 PM	0	276	3	0	2	221	0	0	0	0	0	0	0	0	6	0	508	2174
2:00 PM	0	285	2	0	8	299	0	0	0	0	0	0	0	0	9	0	603	2218
2:15 PM	0	314	4	0	11	304	0	0	0	0	0	0	3	0	9	0	645	2331
2:30 PM	0	291	1	0	3	271	0	0	0	0	0	0	0	0	5	0	571	2327
2:45 PM	0	311	1	0	3	315	0	0	0	0	0	0	0	0	8	0	638	2457
3:00 PM	0	291	2	0	7	355	0	0	0	0	0	0	0	0	7	0	662	2516
3:15 PM	0	355	1	0	2	276	0	0	0	0	0	0	3	0	25	0	662	2533
3:30 PM	0	373	2	0	3	300	0	0	0	0	0	0	2	0	19	0	699	2661
3:45 PM	0	351	2	0	5	320	0	1	0	0	0	0	0	0	6	0	685	2708
4:00 PM	0	373	0	0	5	345	0	1	0	0	0	0	0	0	4	0	728	2774
4:15 PM	0	407	1	0	1	300	0	0	0	0	0	0	0	0	4	0	713	2825
4:30 PM	0	378	1	0	4	288	0	2	0	0	0	0	1	0	2	0	676	2802
4:45 PM	0	328	0	0	4	270	0	0	0	0	0	0	0	0	3	0	605	2722

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1492	0	0	20	1380	0	4	0	0	0	0	0	0	16	0	2912
Heavy Trucks	0	84	0		4	228	0		0	0	0		0	0	0		316
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:05 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

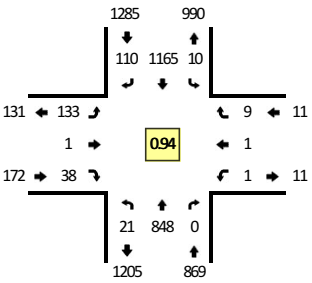
Type of peak hour being reported: User-Defined

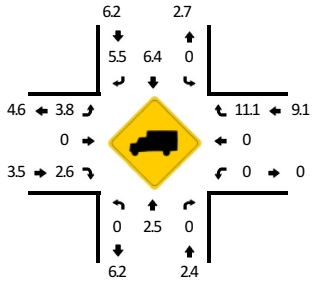
Method for determining peak hour: Total Entering Volume

LOCATION: 4.Piilani Hwy -- Kanani Rd
CITY/STATE: Kihei, HI

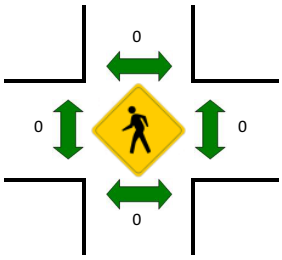
QC JOB #: 16267407
DATE: Thu, May 9 2024

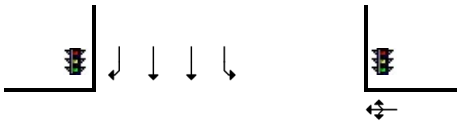
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:00 AM -- 8:15 AM

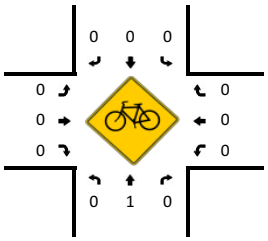


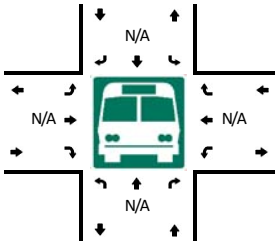


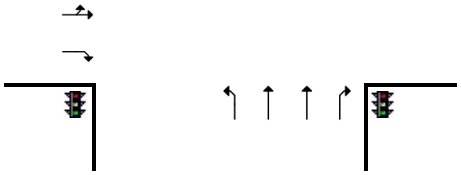
TRUE DATA TO IMPROVE MOBILITY

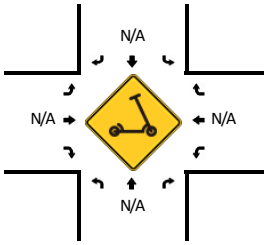












15-Min Count Period Beginning At	4.Piilani Hwy (Northbound)				4.Piilani Hwy (Southbound)				Kanani Rd (Eastbound)				Kanani Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	79	0	0	2	145	16	0	7	0	2	0	0	0	3	0	254	
6:15 AM	0	114	2	0	7	181	13	0	27	0	2	0	0	0	2	0	348	
6:30 AM	3	175	0	0	10	209	12	0	20	0	1	0	0	0	2	0	432	
6:45 AM	4	165	1	0	8	254	17	0	17	0	5	0	0	0	6	0	477	1511
7:00 AM	3	192	0	0	2	217	17	0	26	0	4	0	0	0	4	0	465	1722
7:15 AM	4	216	0	0	3	314	18	0	36	1	5	0	0	0	0	0	597	1971
7:30 AM	6	196	0	0	5	300	24	0	31	0	5	0	0	0	3	0	570	2109
7:45 AM	2	208	0	1	0	252	30	0	35	0	9	0	0	0	4	0	541	2173
8:00 AM	5	209	0	0	2	334	25	0	31	0	13	0	1	0	0	0	620	2328
8:15 AM	7	235	0	0	3	279	31	0	36	1	11	0	0	1	2	0	606	2337
8:30 AM	7	198	0	0	3	268	28	0	35	0	9	0	1	0	3	0	552	2319
8:45 AM	8	209	0	0	4	301	23	0	32	3	12	0	0	0	5	0	597	2375

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	20	836	0	0	8	1336	100	0	124	0	52	0	4	0	0	0	2480
Heavy Trucks	0	24	0		0	92	8		4	0	0		0	0	0		128
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:06 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

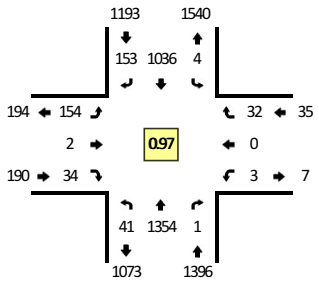
Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

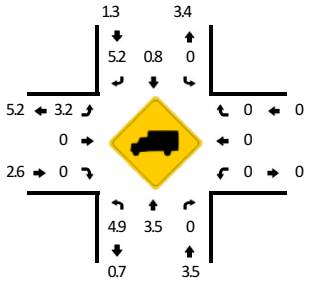
LOCATION: 4.Piilani Hwy -- Kanani Rd
CITY/STATE: Kihei, HI

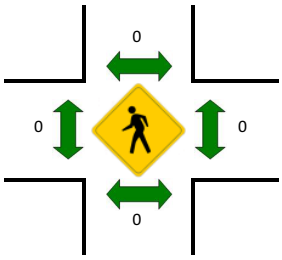
QC JOB #: 16267408
DATE: Thu, May 9 2024

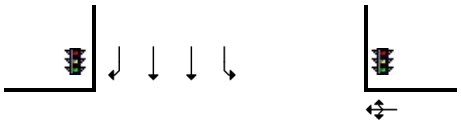
Peak-Hour: 3:30 PM -- 4:30 PM
Peak 15-Min: 4:15 PM -- 4:30 PM

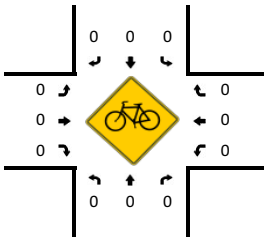


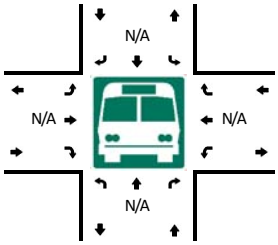


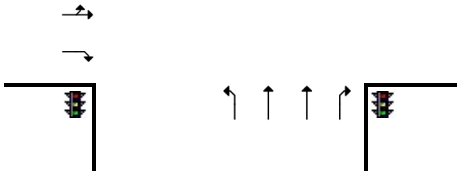


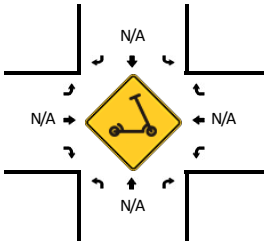












15-Min Count Period Beginning At	4.Piilani Hwy (Northbound)				4.Piilani Hwy (Southbound)				Kanani Rd (Eastbound)				Kanani Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	9	254	1	0	5	180	23	0	25	0	6	0	0	0	2	0	505	
12:15 PM	8	223	1	0	2	214	35	0	19	1	9	0	0	0	3	0	515	
12:30 PM	16	256	0	0	6	213	29	0	29	0	5	0	0	0	5	0	559	
12:45 PM	10	224	0	0	5	230	18	0	39	0	8	0	0	1	4	0	539	2118
1:00 PM	8	247	1	0	2	190	32	0	32	2	4	0	0	1	2	0	521	2134
1:15 PM	9	272	0	0	1	233	23	0	34	0	7	0	0	1	3	0	583	2202
1:30 PM	13	257	0	0	3	235	22	0	27	0	8	0	0	0	1	0	566	2209
1:45 PM	9	248	0	0	1	221	26	0	28	0	8	0	0	0	3	0	544	2214
2:00 PM	9	266	0	0	3	237	30	0	34	0	2	0	0	0	2	0	583	2276
2:15 PM	13	295	1	0	4	306	35	0	21	0	11	0	1	1	6	0	694	2387
2:30 PM	11	270	0	0	1	275	22	0	37	0	13	0	0	1	7	0	637	2458
2:45 PM	10	272	0	0	2	264	30	0	36	0	10	0	0	0	0	0	624	2538
3:00 PM	7	275	0	0	2	335	38	0	39	0	9	0	0	0	2	0	707	2662
3:15 PM	13	345	0	0	2	269	31	0	39	0	6	0	0	0	3	0	708	2676
3:30 PM	6	329	0	0	1	285	29	0	36	0	8	0	2	0	22	0	718	2757
3:45 PM	9	316	1	0	2	273	36	0	29	0	11	0	1	0	6	0	684	2817
4:00 PM	16	329	0	0	1	239	45	0	49	0	6	0	0	0	0	0	685	2795
4:15 PM	10	380	0	0	0	239	43	0	40	2	9	0	0	0	4	0	727	2814
4:30 PM	12	339	0	0	0	259	33	0	40	0	15	0	0	0	2	0	700	2796
4:45 PM	12	314	1	0	3	231	33	0	26	0	7	0	0	0	1	0	628	2740

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	40	1520	0	0	0	956	172	0	160	8	36	0	0	0	16	0	2908
Heavy Trucks	0	40	0		0	8	12		8	0	0		0	0	0		68
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:06 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

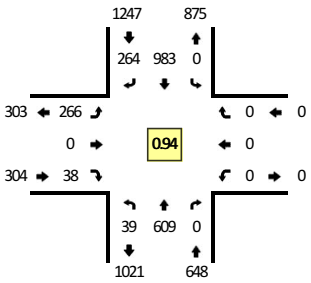
Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

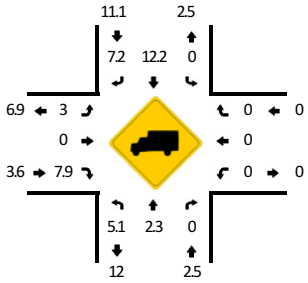
LOCATION: 5.Piilani Hwy -- Alanui Kealii
CITY/STATE: Kihei, HI

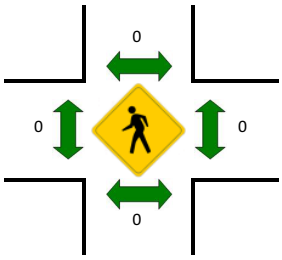
QC JOB #: 16267409
DATE: Thu, May 9 2024

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:00 AM -- 8:15 AM

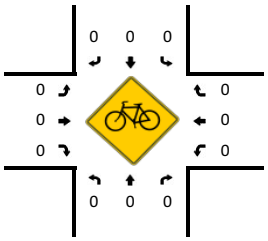


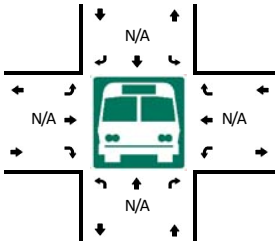


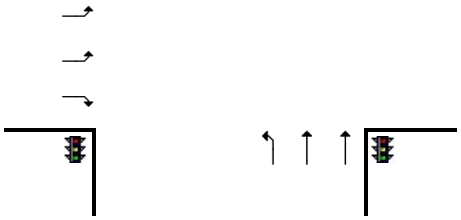


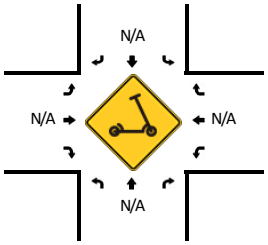












15-Min Count Period Beginning At	5.Piilani Hwy (Northbound)				5.Piilani Hwy (Southbound)				Alanui Kealii (Eastbound)				Alanui Kealii (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	2	61	0	0	0	128	16	0	19	0	3	0	0	0	0	0	229	
6:15 AM	2	87	0	0	0	160	22	0	30	0	1	0	0	0	0	0	302	
6:30 AM	0	132	0	0	0	179	25	0	46	0	5	0	0	0	0	0	387	
6:45 AM	2	119	0	0	0	224	33	0	41	0	12	0	0	0	0	0	431	1349
7:00 AM	2	154	0	0	0	197	30	0	49	0	6	0	0	0	0	0	438	1558
7:15 AM	1	165	0	0	0	249	33	0	48	0	8	0	0	0	0	0	504	1760
7:30 AM	7	153	0	0	0	296	45	0	48	0	4	0	0	0	0	0	553	1926
7:45 AM	5	159	0	0	0	204	58	0	58	0	5	0	0	0	0	0	489	1984
8:00 AM	6	151	0	0	0	269	87	0	61	0	12	0	0	0	0	0	586	2132
8:15 AM	21	146	0	0	0	214	74	0	99	0	17	0	0	0	0	0	571	2199
8:30 AM	5	134	0	0	0	227	48	0	65	0	9	0	0	0	0	0	488	2134
8:45 AM	5	158	0	0	0	256	54	0	56	0	7	0	0	0	0	0	536	2181

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	24	604	0	0	0	1076	348	0	244	0	48	0	0	0	0	0	2344
Heavy Trucks	4	12	0		0	160	24		12	0	12		0	0	0		224
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:06 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: 5.Piilani Hwy -- Alanui Kealii

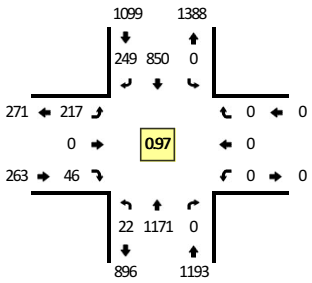
CITY/STATE: Kihei, HI

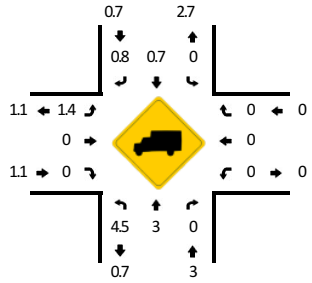
QC JOB #: 16267410

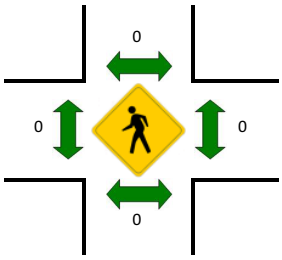
DATE: Thu, May 9 2024

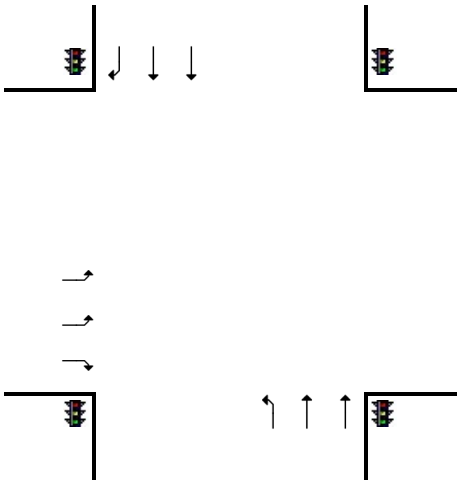
Peak-Hour: 3:30 PM -- 4:30 PM

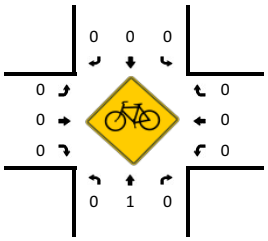
Peak 15-Min: 3:30 PM -- 3:45 PM

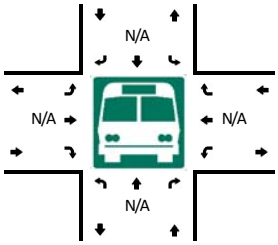


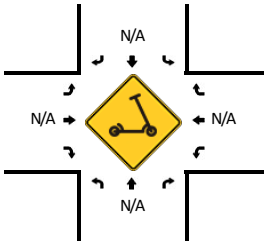












15-Min Count Period Beginning At	5.Piilani Hwy (Northbound)				5.Piilani Hwy (Southbound)				Alanui Kealii (Eastbound)				Alanui Kealii (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	10	228	0	0	0	150	38	0	42	0	6	0	0	0	0	0	474	
12:15 PM	8	194	0	0	0	177	45	0	39	0	13	0	0	0	0	0	476	
12:30 PM	6	207	0	0	0	169	41	0	57	0	8	0	0	0	0	0	488	
12:45 PM	6	193	0	0	0	186	50	0	46	0	14	0	0	0	0	0	495	1933
1:00 PM	3	216	0	0	0	167	38	0	35	0	7	0	0	0	0	0	466	1925
1:15 PM	5	235	0	0	0	201	34	0	40	0	12	0	0	0	0	0	527	1976
1:30 PM	5	219	0	0	0	182	47	0	50	0	8	0	0	0	0	0	511	1999
1:45 PM	6	203	0	0	0	203	49	0	47	0	7	0	0	0	0	0	515	2019
2:00 PM	9	234	0	0	0	190	49	0	48	0	13	0	0	0	0	0	543	2096
2:15 PM	6	233	0	1	0	249	66	0	66	0	10	0	0	0	0	0	631	2200
2:30 PM	8	204	0	0	0	192	75	0	96	0	13	0	0	0	0	0	588	2277
2:45 PM	2	188	0	0	0	238	57	0	78	0	11	0	0	0	0	0	574	2336
3:00 PM	6	249	0	0	0	259	58	0	40	0	7	0	0	0	0	0	619	2412
3:15 PM	7	301	0	0	0	212	60	0	63	0	9	0	0	0	0	0	652	2433
3:30 PM	7	277	0	0	0	248	68	0	50	0	8	0	0	0	0	0	658	2503
3:45 PM	10	266	0	0	0	195	61	0	55	0	15	0	0	0	0	0	602	2531
4:00 PM	2	291	0	0	0	213	63	0	61	0	11	0	0	0	0	0	641	2553
4:15 PM	3	337	0	0	0	194	57	0	51	0	12	0	0	0	0	0	654	2555
4:30 PM	7	290	0	0	0	193	77	0	62	0	6	0	0	0	0	0	635	2532
4:45 PM	8	261	0	0	0	186	52	0	55	0	6	0	0	0	0	0	568	2498

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	28	1108	0	0	0	992	272	0	200	0	32	0	0	0	0	0	2632
Heavy Trucks	0	24	0		0	12	0		0	0	0		0	0	0		36
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	4	0		0	0	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 7/15/2024 6:06 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

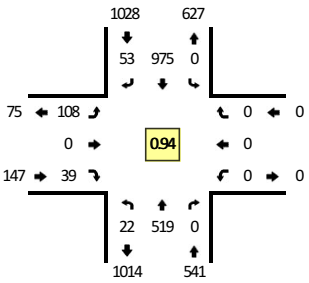
Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

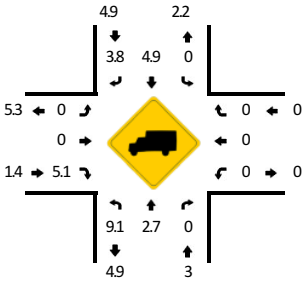
LOCATION: 6.Piilani Hwy -- Keonekai Rd
CITY/STATE: Wailea, HI

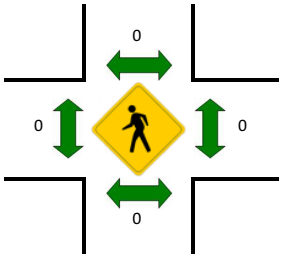
QC JOB #: 16267411
DATE: Thu, May 9 2024

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

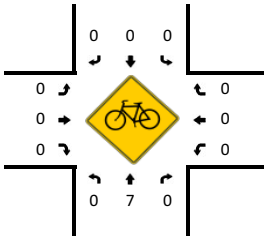


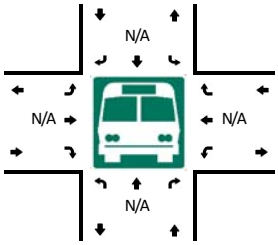
TRUE DATA TO IMPROVE MOBILITY

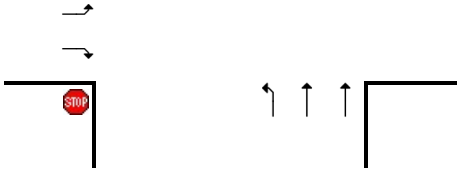


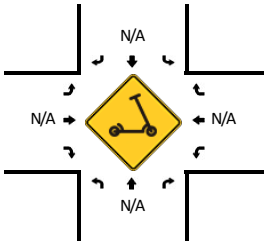












15-Min Count Period Beginning At	6.Piilani Hwy (Northbound)				6.Piilani Hwy (Southbound)				Keonekai Rd (Eastbound)				Keonekai Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	2	50	0	0	0	127	3	0	16	0	2	0	0	0	0	0	200	
6:15 AM	3	77	0	0	0	153	8	0	16	0	9	0	0	0	0	0	266	
6:30 AM	2	105	0	0	0	170	12	0	23	0	7	0	0	0	0	0	319	
6:45 AM	4	101	0	0	0	216	13	0	29	0	3	0	0	0	0	0	366	1151
7:00 AM	3	145	0	0	0	202	9	0	22	0	9	0	0	0	0	0	390	1341
7:15 AM	9	142	0	0	0	224	17	0	20	0	8	0	0	0	0	0	420	1495
7:30 AM	5	126	0	0	0	281	9	0	29	0	5	0	0	0	0	0	455	1631
7:45 AM	3	131	0	0	0	233	11	0	24	0	7	0	0	0	0	0	409	1674
8:00 AM	6	121	0	0	0	227	14	0	27	0	14	0	0	0	0	0	409	1693
8:15 AM	8	141	0	0	0	234	19	0	28	0	13	0	0	0	0	0	443	1716
8:30 AM	5	123	0	0	0	224	17	0	20	0	12	0	0	0	0	0	401	1662
8:45 AM	10	129	0	0	0	230	23	0	25	0	11	0	0	0	0	0	428	1681

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	20	504	0	0	0	1124	36	0	116	0	20	0	0	0	0	0	1820
Heavy Trucks	0	16	0		0	48	0		0	0	4		0	0	0		68
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:07 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

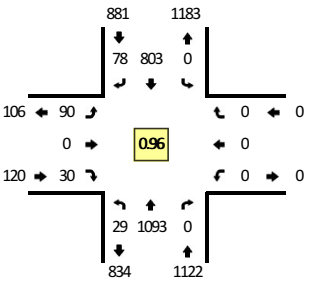
Type of peak hour being reported: User-Defined

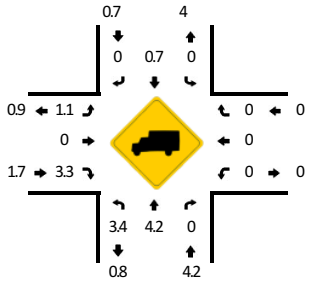
Method for determining peak hour: Total Entering Volume

LOCATION: 6.Piilani Hwy -- Keonekai Rd
CITY/STATE: Wailea, HI

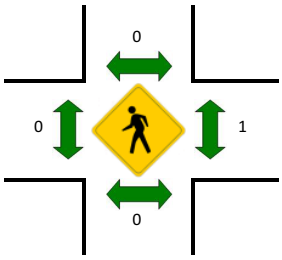
QC JOB #: 16267412
DATE: Thu, May 9 2024

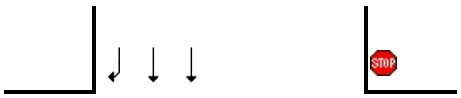
Peak-Hour: 3:30 PM -- 4:30 PM
Peak 15-Min: 4:15 PM -- 4:30 PM

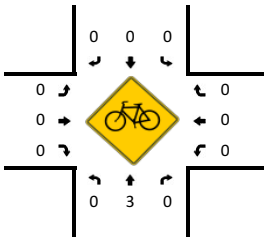


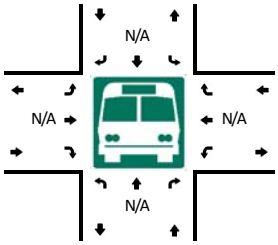


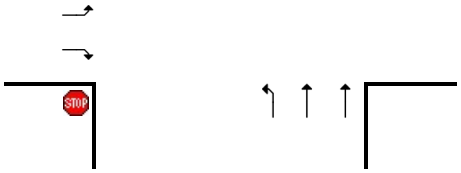
TRUE DATA TO IMPROVE MOBILITY

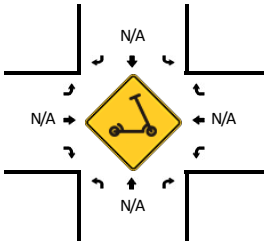












15-Min Count Period Beginning At	6.Piilani Hwy (Northbound)				6.Piilani Hwy (Southbound)				Keonekai Rd (Eastbound)				Keonekai Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	5	214	0	0	0	143	24	0	25	0	5	0	0	0	0	0	416	
12:15 PM	7	186	0	0	0	145	19	0	20	0	3	0	0	0	0	0	380	
12:30 PM	6	173	0	0	0	175	19	0	27	0	3	0	0	0	0	0	403	
12:45 PM	9	185	0	0	0	185	11	1	24	0	11	0	0	0	0	0	426	1625
1:00 PM	8	199	0	0	0	157	19	0	29	0	5	0	0	0	0	0	417	1626
1:15 PM	8	213	0	0	0	187	23	0	20	0	8	0	0	0	0	0	459	1705
1:30 PM	7	207	0	0	0	173	16	0	13	0	5	0	0	0	0	0	421	1723
1:45 PM	8	186	0	0	0	192	21	0	20	0	5	0	0	0	0	0	432	1729
2:00 PM	4	226	0	0	0	173	22	0	19	0	8	0	0	0	0	0	452	1764
2:15 PM	8	224	0	0	0	241	26	0	18	0	3	0	0	0	0	0	520	1825
2:30 PM	10	198	0	0	0	176	27	0	13	0	8	0	0	0	0	0	432	1836
2:45 PM	8	161	0	0	0	215	29	0	25	0	19	0	0	0	0	0	457	1861
3:00 PM	3	235	0	0	0	226	31	0	19	0	9	0	0	0	0	0	523	1932
3:15 PM	9	298	0	0	0	200	25	0	15	0	14	0	0	0	0	0	561	1973
3:30 PM	7	267	0	0	0	225	14	0	22	0	7	0	0	0	0	0	542	2083
3:45 PM	8	251	0	0	0	199	25	0	21	0	12	0	0	0	0	0	516	2142
4:00 PM	7	269	0	0	0	191	22	0	22	0	3	0	0	0	0	0	514	2133
4:15 PM	6	306	0	1	0	188	17	0	25	0	8	0	0	0	0	0	551	2123
4:30 PM	8	279	0	0	0	191	22	0	22	0	8	0	0	0	0	0	530	2111
4:45 PM	5	247	0	0	0	164	23	0	20	0	14	0	0	0	0	0	473	2068

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	24	1224	0	4	0	752	68	0	100	0	32	0	0	0	0	0	2204
Heavy Trucks	4	36	0		0	0	0		4	0	0		0	0	0		44
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:07 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

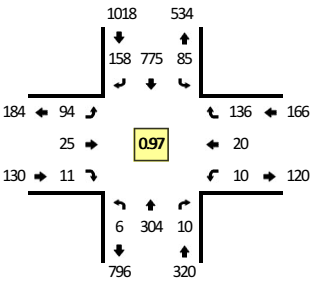
Type of peak hour being reported: User-Defined

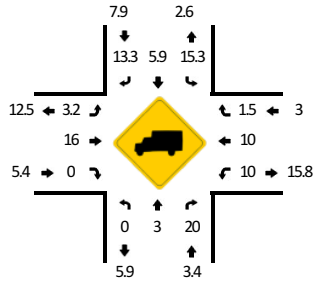
Method for determining peak hour: Total Entering Volume

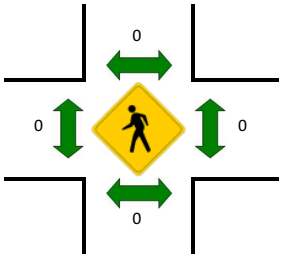
LOCATION: 7.Piilani Hwy -- Kilohana Dr/Mapu Dr
CITY/STATE: Wailea, HI

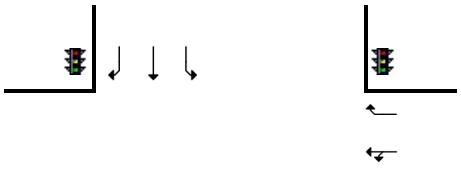
QC JOB #: 16267413
DATE: Thu, May 9 2024

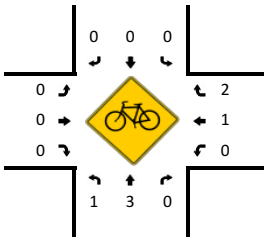
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

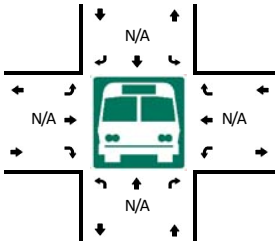




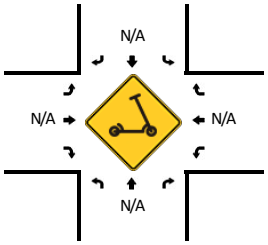












15-Min Count Period Beginning At	7.Piilani Hwy (Northbound)				7.Piilani Hwy (Southbound)				Kilohana Dr/Mapu Dr (Eastbound)				Kilohana Dr/Mapu Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	36	0	0	1	117	8	0	9	0	0	0	0	3	8	0	182	
6:15 AM	3	49	0	0	3	141	14	0	9	5	1	0	1	1	24	0	251	
6:30 AM	1	79	1	0	6	165	17	0	17	1	1	0	1	1	14	0	304	
6:45 AM	0	62	0	0	13	166	37	1	18	1	1	0	1	1	23	0	324	1061
7:00 AM	1	100	2	0	8	173	41	0	22	3	1	0	0	4	25	0	380	1259
7:15 AM	2	86	2	0	8	180	41	0	28	2	0	0	1	6	32	0	388	1396
7:30 AM	3	77	3	0	19	201	53	0	22	10	1	0	4	1	27	0	421	1513
7:45 AM	2	78	2	0	22	202	36	0	22	8	3	0	1	8	31	0	415	1604
8:00 AM	0	75	2	0	24	184	33	0	25	3	5	0	1	8	33	0	393	1617
8:15 AM	1	74	3	0	20	188	36	0	25	4	2	0	4	3	45	0	405	1634
8:30 AM	0	86	0	0	32	180	35	0	18	3	1	0	3	6	26	0	390	1603
8:45 AM	2	84	4	0	27	193	35	0	25	8	3	0	2	6	26	0	415	1603

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	308	12	0	76	804	212	0	88	40	4	0	16	4	108	0	1684
Heavy Trucks	0	12	4		0	52	32		0	8	0		0	0	0		108
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	4	0		4
Scooters																	

Comments:

Report generated on 7/15/2024 6:07 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: 7.Piilani Hwy -- Kilohana Dr/Mapu Dr

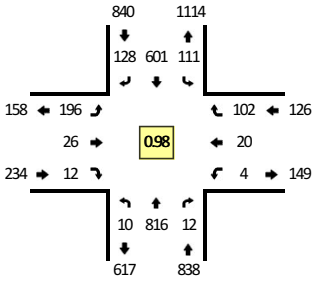
QC JOB #: 16267414

CITY/STATE: Wailea, HI

DATE: Thu, May 9 2024

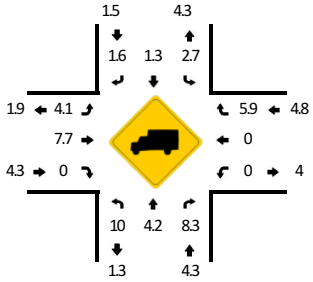
Peak-Hour: 3:30 PM -- 4:30 PM

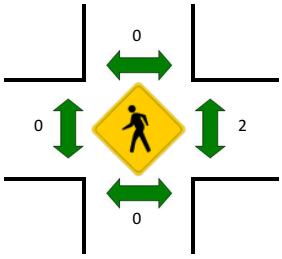
Peak 15-Min: 4:15 PM -- 4:30 PM

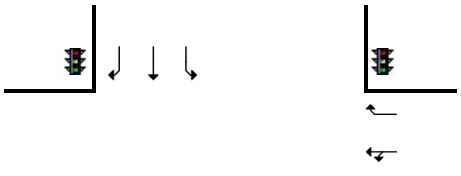


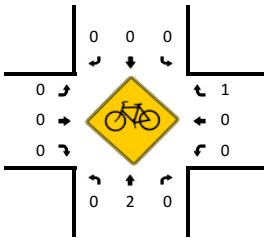


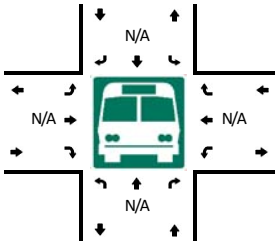
TRUE DATA TO IMPROVE MOBILITY



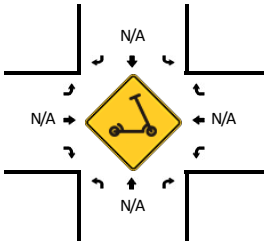












15-Min Count Period Beginning At	7.Piilani Hwy (Northbound)				7.Piilani Hwy (Southbound)				Kilohana Dr/Mapu Dr (Eastbound)				Kilohana Dr/Mapu Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	2	168	1	0	24	96	37	0	30	11	1	0	5	2	18	0	395	
12:15 PM	1	133	2	0	20	112	24	0	34	11	2	0	2	6	21	0	368	
12:30 PM	0	128	3	0	25	130	18	0	26	2	1	0	1	7	26	0	367	
12:45 PM	2	142	1	0	25	137	27	0	22	5	2	0	2	1	27	0	393	1523
1:00 PM	0	163	2	0	19	122	38	0	24	7	1	0	2	2	25	0	405	1533
1:15 PM	1	155	3	0	17	139	28	1	31	9	3	0	0	8	28	0	423	1588
1:30 PM	2	158	0	1	21	143	28	0	30	11	3	0	3	1	30	0	431	1652
1:45 PM	5	129	2	0	19	140	30	0	40	9	1	0	4	4	24	0	407	1666
2:00 PM	1	168	3	0	25	141	30	0	26	9	2	0	3	2	30	0	440	1701
2:15 PM	0	174	3	0	25	162	35	0	25	6	0	0	0	5	30	0	465	1743
2:30 PM	3	147	0	0	22	137	35	0	26	5	2	0	2	4	35	0	418	1730
2:45 PM	1	133	3	0	30	165	39	0	20	10	0	0	1	6	18	0	426	1749
3:00 PM	3	208	1	1	26	196	32	0	25	4	2	0	1	6	14	0	519	1828
3:15 PM	2	221	5	0	27	164	28	0	34	7	2	0	3	4	38	0	535	1898
3:30 PM	1	211	5	0	20	151	33	0	42	4	3	0	1	3	29	0	503	1983
3:45 PM	4	188	2	0	28	180	31	0	41	11	1	0	0	5	20	0	511	2068
4:00 PM	3	203	2	0	30	142	29	0	52	5	5	0	2	5	28	0	506	2055
4:15 PM	2	214	3	0	33	128	35	0	61	6	3	0	1	7	25	0	518	2038
4:30 PM	2	225	1	0	30	145	25	0	44	7	3	0	1	2	30	0	515	2050
4:45 PM	1	189	4	0	22	129	23	0	25	9	1	0	5	1	30	0	439	1978

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	856	12	0	132	512	140	0	244	24	12	0	4	28	100	0	2072
Heavy Trucks	0	20	4		4	8	4		12	4	0		0	0	4		60
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	4	0		0	0	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 7/15/2024 6:08 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

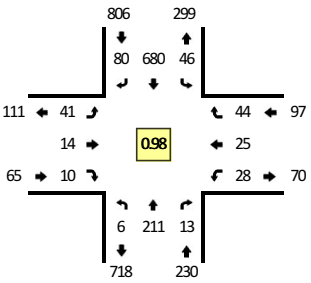
Type of peak hour being reported: User-Defined

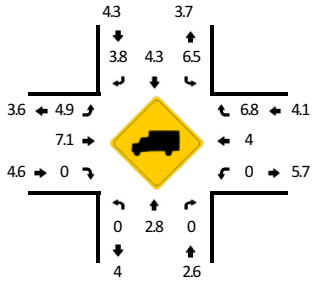
Method for determining peak hour: Total Entering Volume

LOCATION: 8.Piilani Hwy -- Okolani Dr/Mikioi Pl
CITY/STATE: Wailea, HI

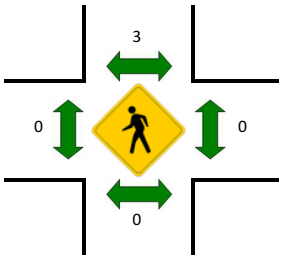
QC JOB #: 16267415
DATE: Thu, May 9 2024

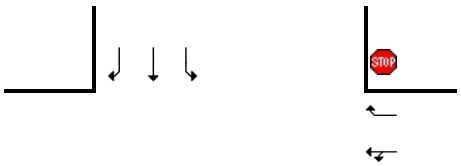
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

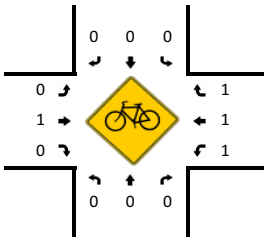


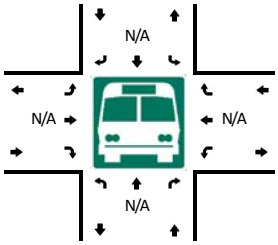


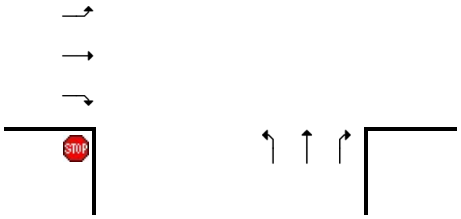
TRUE DATA TO IMPROVE MOBILITY

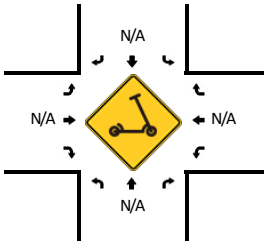












15-Min Count Period Beginning At	8.Piilani Hwy (Northbound)				8.Piilani Hwy (Southbound)				Okolani Dr/Mikioi Pl (Eastbound)				Okolani Dr/Mikioi Pl (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	27	0	0	2	95	16	0	4	0	1	0	4	3	7	0	159	
6:15 AM	0	29	1	0	1	125	18	0	8	0	1	0	3	1	16	0	203	
6:30 AM	0	62	0	0	4	136	16	0	6	0	1	0	2	3	9	0	239	
6:45 AM	2	37	2	0	7	141	10	0	8	4	0	0	11	3	9	0	234	835
7:00 AM	0	69	3	1	2	141	29	0	9	1	3	0	4	7	13	0	282	958
7:15 AM	0	66	4	0	0	145	28	0	11	4	1	0	10	2	6	0	277	1032
7:30 AM	1	54	2	0	2	194	22	0	6	2	0	0	8	6	6	0	303	1096
7:45 AM	2	56	2	0	6	173	21	1	10	1	3	0	13	6	13	0	307	1169
8:00 AM	1	53	6	0	16	168	14	0	15	4	4	0	2	8	9	0	300	1187
8:15 AM	2	48	3	0	19	145	23	2	10	7	3	0	5	5	16	0	288	1198
8:30 AM	3	62	1	0	11	157	15	2	12	7	4	0	16	10	16	0	316	1211
8:45 AM	1	68	2	0	10	164	22	0	7	4	3	0	7	6	14	0	308	1212

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	224	8	0	24	692	84	4	40	4	12	0	52	24	52	0	1228
Heavy Trucks	0	8	0		4	44	0		0	0	0		0	0	4		60
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	4	4		8
Scooters																	

Comments:

Report generated on 7/15/2024 6:08 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: 8.Piilani Hwy -- Okolani Dr/Mikioi Pl

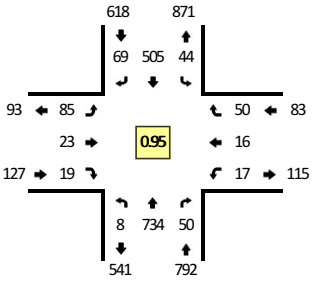
CITY/STATE: Wailea, HI

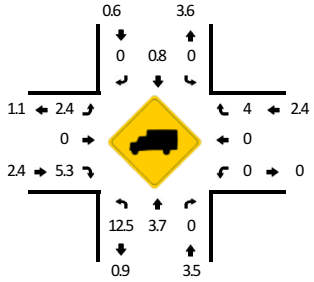
QC JOB #: 16267416

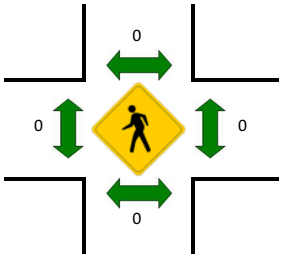
DATE: Thu, May 9 2024

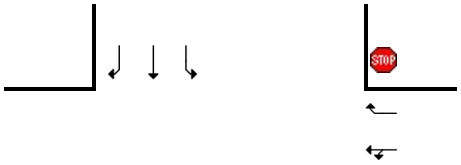
Peak-Hour: 3:30 PM -- 4:30 PM

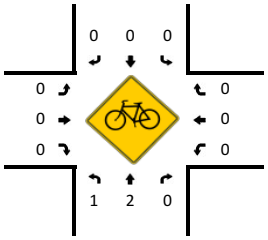
Peak 15-Min: 4:00 PM -- 4:15 PM

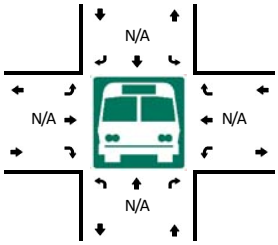


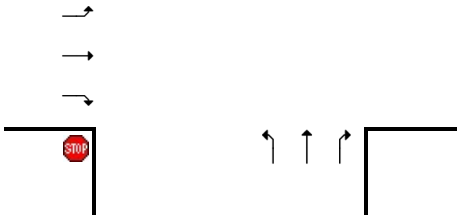


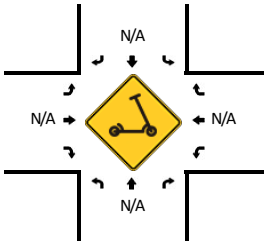












15-Min Count Period Beginning At	8.Piilani Hwy (Northbound)				8.Piilani Hwy (Southbound)				Okolani Dr/Mikioi Pl (Eastbound)				Okolani Dr/Mikioi Pl (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	1	136	8	0	6	77	11	1	28	4	1	0	5	3	10	0	291	
12:15 PM	3	100	6	0	8	94	13	0	24	4	4	0	4	0	12	0	272	
12:30 PM	1	113	12	0	13	101	18	0	6	3	4	0	6	3	11	0	291	
12:45 PM	0	119	15	0	8	119	18	0	14	4	1	0	9	2	8	0	317	1171
1:00 PM	2	151	7	0	9	92	17	1	13	2	7	0	4	0	9	0	314	1194
1:15 PM	3	134	4	0	17	115	15	0	20	6	3	0	6	3	9	0	335	1257
1:30 PM	4	133	9	0	15	121	16	1	8	5	1	0	6	1	16	0	336	1302
1:45 PM	2	107	19	2	13	109	17	0	12	5	2	0	11	3	13	0	315	1300
2:00 PM	1	152	4	0	14	105	13	0	17	3	7	0	4	3	8	0	331	1317
2:15 PM	1	148	6	0	15	129	26	0	11	4	2	0	4	2	21	0	369	1351
2:30 PM	2	117	4	0	26	98	22	0	14	3	4	0	7	5	6	0	308	1323
2:45 PM	2	118	9	0	16	120	21	2	18	4	2	0	5	1	7	0	325	1333
3:00 PM	2	196	6	0	14	138	33	0	21	9	3	0	5	0	18	0	445	1447
3:15 PM	2	180	11	0	21	133	27	1	15	6	3	0	7	6	14	0	426	1504
3:30 PM	1	176	8	0	6	131	21	1	22	9	5	0	3	4	23	0	410	1606
3:45 PM	1	164	15	0	7	149	20	0	14	2	4	0	7	3	5	0	391	1672
4:00 PM	1	202	15	0	16	121	16	0	24	3	7	0	3	4	16	0	428	1655
4:15 PM	5	192	12	0	13	104	12	1	25	9	3	0	4	5	6	0	391	1620
4:30 PM	0	182	6	0	23	118	14	2	20	5	1	0	7	3	7	0	388	1598
4:45 PM	1	150	16	0	11	106	24	1	22	8	5	0	5	3	12	0	364	1571

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	808	60	0	64	484	64	0	96	12	28	0	12	16	64	0	1712
Heavy Trucks	0	24	0		0	0	0		4	0	4		0	0	0		32
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	4	0	0		0	0	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 7/15/2024 6:08 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

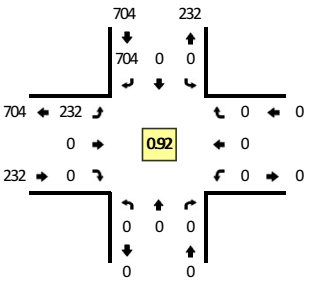
Type of peak hour being reported: User-Defined

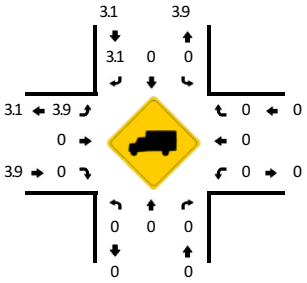
Method for determining peak hour: Total Entering Volume

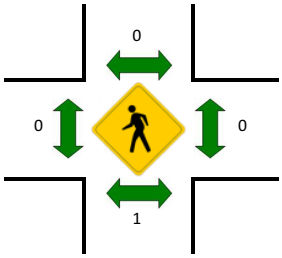
LOCATION: 9.Piilani Hwy -- Wailea Ike Dr
CITY/STATE: Wailea, HI

QC JOB #: 16267417
DATE: Thu, May 9 2024

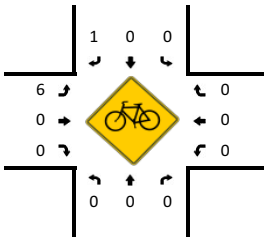
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

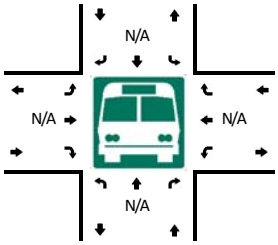




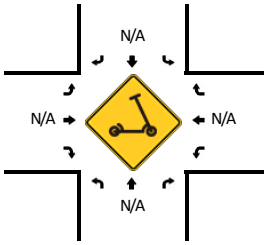












15-Min Count Period Beginning At	9.Piilani Hwy (Northbound)				9.Piilani Hwy (Southbound)				Wailea Ike Dr (Eastbound)				Wailea Ike Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	0	0	0	0	0	91	0	30	0	0	0	0	0	0	0	121	
6:15 AM	0	0	0	0	0	0	135	0	30	0	0	0	0	0	0	0	165	
6:30 AM	0	0	0	0	0	0	134	0	58	0	0	0	0	0	0	0	192	
6:45 AM	0	0	0	0	0	0	155	0	41	0	0	0	0	0	0	0	196	674
7:00 AM	0	0	0	0	0	0	145	0	76	0	0	0	0	0	0	0	221	774
7:15 AM	0	0	0	0	0	0	152	0	72	0	0	0	0	0	0	0	224	833
7:30 AM	0	0	0	0	0	0	202	0	51	0	0	0	0	0	0	0	253	894
7:45 AM	0	0	0	0	0	0	183	0	67	0	0	0	0	0	0	0	250	948
8:00 AM	0	0	0	0	0	0	162	0	57	0	0	0	0	0	0	0	219	946
8:15 AM	0	0	0	0	0	0	157	0	57	0	0	0	0	0	0	0	214	936
8:30 AM	0	0	0	0	0	0	180	0	62	0	0	0	0	0	0	0	242	925
8:45 AM	0	0	0	0	0	0	161	0	72	0	0	0	0	0	0	0	233	908

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	808	0	204	0	0	0	0	0	0	0	1012
Heavy Trucks	0	0	0		0	0	20		0	0	0		0	0	0		20
Buses																	
Pedestrians		4				0				0				0			4
Bicycles	0	0	0		0	0	0		4	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 7/15/2024 6:08 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

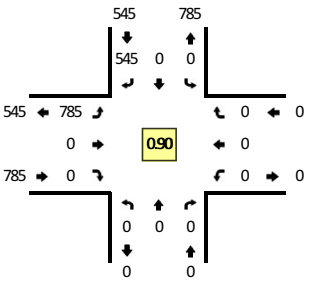
Type of peak hour being reported: User-Defined

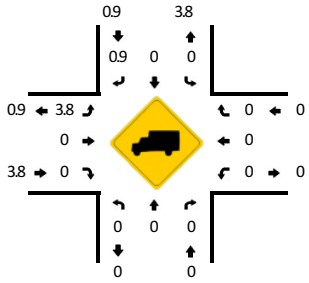
Method for determining peak hour: Total Entering Volume

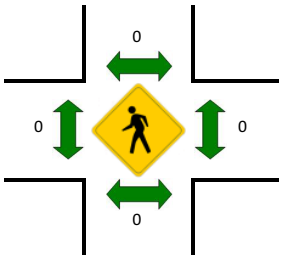
LOCATION: 9.Piilani Hwy -- Wailea Ike Dr
CITY/STATE: Wailea, HI

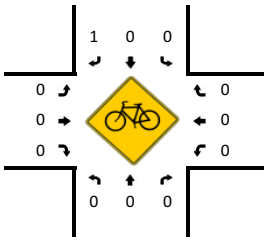
QC JOB #: 16267418
DATE: Thu, May 9 2024

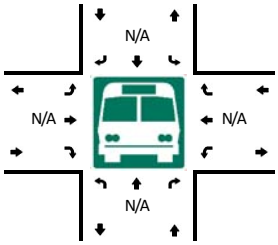
Peak-Hour: 3:30 PM -- 4:30 PM
Peak 15-Min: 4:00 PM -- 4:15 PM

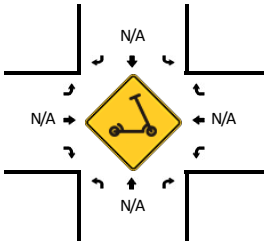












15-Min Count Period Beginning At	9.Piilani Hwy (Northbound)				9.Piilani Hwy (Southbound)				Wailea Ike Dr (Eastbound)				Wailea Ike Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	0	0	0	0	0	0	83	0	144	0	0	0	0	0	0	0	227	
12:15 PM	0	0	0	0	0	0	103	0	114	0	0	0	0	0	0	0	217	
12:30 PM	0	0	0	0	0	0	101	0	125	0	0	0	0	0	0	0	226	
12:45 PM	0	0	0	0	0	0	139	0	139	0	0	0	0	0	0	0	278	948
1:00 PM	0	0	0	0	0	0	99	0	155	0	0	0	0	0	0	0	254	975
1:15 PM	0	0	0	0	0	0	127	0	141	0	0	0	0	0	0	0	268	1026
1:30 PM	0	0	0	0	0	0	115	0	146	0	0	0	0	0	0	0	261	1061
1:45 PM	0	0	0	0	0	0	133	0	126	0	0	0	0	0	0	0	259	1042
2:00 PM	0	0	0	0	0	0	105	0	162	0	0	0	0	0	0	0	267	1055
2:15 PM	0	0	0	0	0	0	141	0	161	0	0	0	0	0	0	0	302	1089
2:30 PM	0	0	0	0	0	0	113	0	120	0	0	0	0	0	0	0	233	1061
2:45 PM	0	0	0	0	0	0	125	0	129	0	0	0	0	0	0	0	254	1056
3:00 PM	0	0	0	0	0	0	138	0	231	0	0	0	0	0	0	0	369	1158
3:15 PM	0	0	0	0	0	0	147	0	168	0	0	0	0	0	0	0	315	1171
3:30 PM	0	0	0	0	0	0	146	0	185	0	0	0	0	0	0	0	331	1269
3:45 PM	0	0	0	0	0	0	156	0	181	0	0	0	0	0	0	0	337	1352
4:00 PM	0	0	0	0	0	0	126	0	242	0	0	0	0	0	0	0	368	1351
4:15 PM	0	0	0	0	0	0	117	0	177	0	0	0	0	0	0	0	294	1330
4:30 PM	0	0	0	0	0	0	119	0	198	0	0	0	0	0	0	0	317	1316
4:45 PM	0	0	0	0	0	0	114	0	159	0	0	0	0	0	0	0	273	1252

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	504	0	968	0	0	0	0	0	0	0	1472
Heavy Trucks	0	0	0		0	0	4		40	0	0		0	0	0		44
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:09 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

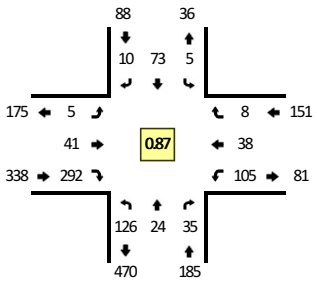
Type of peak hour being reported: User-Defined

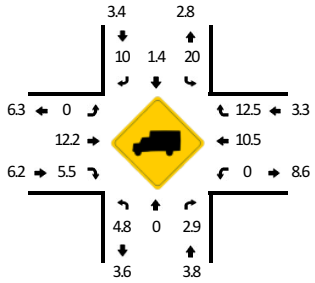
Method for determining peak hour: Total Entering Volume

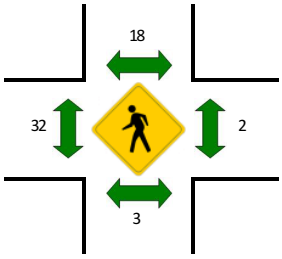
LOCATION: 10.Wailea Alanui Dr -- Okolani Dr
CITY/STATE: Wailea, HI

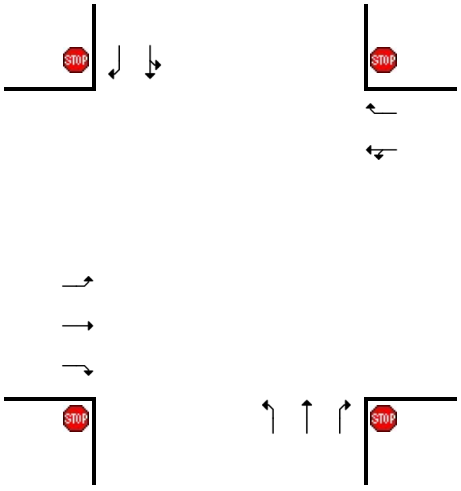
QC JOB #: 16267419
DATE: Thu, May 9 2024

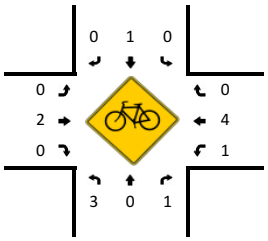
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:15 AM -- 8:30 AM

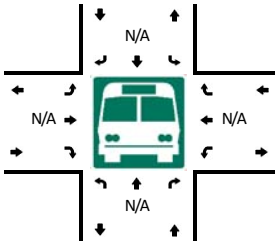


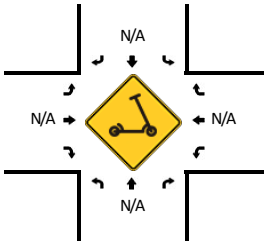












TRUE DATA TO IMPROVE MOBILITY

15-Min Count Period Beginning At	10.Wailea Alanui Dr (Northbound)				10.Wailea Alanui Dr (Southbound)				Okolani Dr (Eastbound)				Okolani Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	9	2	6	0	0	2	0	0	0	2	17	0	17	3	1	0	59	
6:15 AM	13	4	4	0	1	7	0	0	1	4	47	0	23	2	0	0	106	
6:30 AM	19	5	4	0	1	6	0	1	2	5	36	0	25	4	1	0	109	
6:45 AM	24	9	5	0	1	14	1	0	2	9	39	0	25	1	1	0	131	405
7:00 AM	18	9	11	0	1	10	1	0	0	4	50	0	28	5	2	0	139	485
7:15 AM	17	10	12	0	1	12	0	0	0	7	55	0	30	4	5	0	153	532
7:30 AM	35	5	4	0	0	16	2	0	0	12	77	1	32	8	2	0	194	617
7:45 AM	22	5	8	0	3	22	0	0	0	9	88	0	25	6	4	0	192	678
8:00 AM	28	4	11	0	0	15	3	0	2	8	64	0	15	8	0	0	158	697
8:15 AM	41	10	12	0	2	20	5	0	2	12	63	0	33	16	2	0	218	762
8:30 AM	33	4	9	0	1	15	0	0	1	8	54	0	24	6	2	0	157	725
8:45 AM	38	4	7	0	0	15	6	0	2	8	69	0	25	8	1	0	183	716

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	164	40	48	0	8	80	20	0	8	48	252	0	132	64	8	0	872
Heavy Trucks	8	0	0		4	0	4		0	4	16		0	0	0		36
Buses																	
Pedestrians		8				20				24				8			60
Bicycles	8	0	0		0	0	0		0	4	0		0	8	0		20
Scooters																	

Comments:

Report generated on 7/15/2024 6:09 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

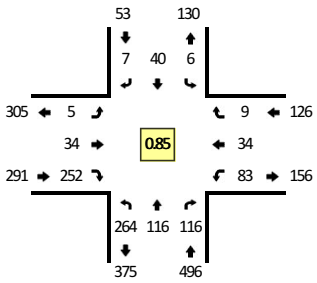
Type of peak hour being reported: User-Defined

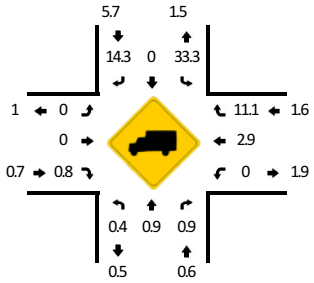
Method for determining peak hour: Total Entering Volume

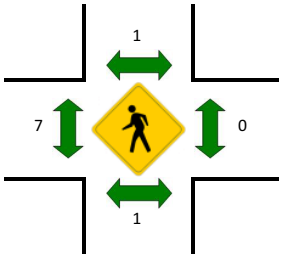
LOCATION: 10.Wailea Alanui Dr -- Okolani Dr
CITY/STATE: Wailea, HI

QC JOB #: 16267420
DATE: Thu, May 9 2024

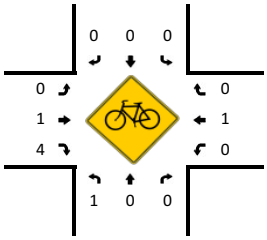
Peak-Hour: 3:30 PM -- 4:30 PM
Peak 15-Min: 4:00 PM -- 4:15 PM

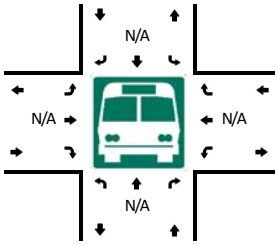


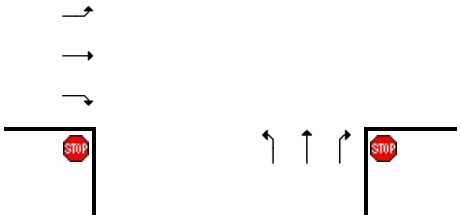


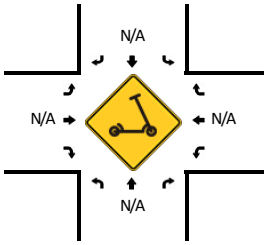












15-Min Count Period Beginning At	10.Wailea Alanui Dr (Northbound)				10.Wailea Alanui Dr (Southbound)				Okolani Dr (Eastbound)				Okolani Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	54	23	16	0	1	9	3	0	1	7	49	0	22	5	4	0	194	
12:15 PM	54	14	15	0	2	6	2	0	3	13	55	0	17	6	0	0	187	
12:30 PM	43	14	16	0	2	13	1	0	3	6	77	0	20	6	1	0	202	
12:45 PM	67	14	16	0	2	12	3	0	1	5	56	0	19	7	1	0	203	786
1:00 PM	56	20	14	0	0	5	4	0	1	5	59	0	14	8	1	0	187	779
1:15 PM	66	19	12	0	3	9	2	0	3	14	62	0	20	6	2	0	218	810
1:30 PM	63	12	15	0	3	3	1	0	3	5	72	0	18	3	2	0	200	808
1:45 PM	52	16	18	0	0	12	3	0	1	8	45	0	28	5	1	0	189	794
2:00 PM	69	10	21	0	1	5	1	0	2	14	60	0	18	2	2	0	205	812
2:15 PM	51	11	17	0	0	16	4	0	1	4	67	0	26	5	2	0	204	798
2:30 PM	41	14	14	1	0	6	2	0	2	9	67	0	26	8	2	0	192	790
2:45 PM	43	14	19	0	4	12	5	0	2	5	64	1	19	6	4	0	198	799
3:00 PM	51	25	25	0	0	8	2	0	5	11	72	0	26	7	0	0	232	826
3:15 PM	61	14	23	0	2	7	1	0	1	9	54	1	25	9	2	0	209	831
3:30 PM	63	24	24	0	3	11	1	0	1	11	47	0	25	8	2	0	220	859
3:45 PM	51	22	19	0	2	5	1	0	4	2	62	0	25	6	3	0	202	863
4:00 PM	72	39	41	0	1	12	3	0	0	11	75	0	17	11	3	0	285	916
4:15 PM	78	31	32	0	0	12	2	0	0	10	68	0	16	9	1	0	259	966
4:30 PM	80	19	23	1	3	7	3	0	1	6	69	1	19	6	0	0	238	984
4:45 PM	59	16	21	0	1	9	0	0	2	8	57	0	26	3	0	0	202	984

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	288	156	164	0	4	48	12	0	0	44	300	0	68	44	12	0	1140
Heavy Trucks	0	4	0		0	0	4		0	0	4		0	4	0		16
Buses																	
Pedestrians		0				0				16				0			16
Bicycles	0	0	0		0	0	0		0	4	8		0	0	0		12
Scooters																	

Comments:

Report generated on 7/15/2024 6:09 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

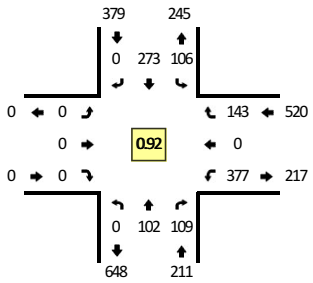
Type of peak hour being reported: User-Defined

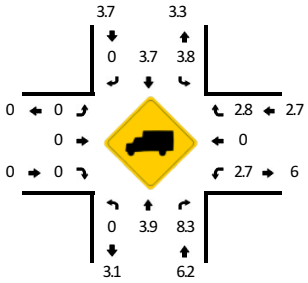
Method for determining peak hour: Total Entering Volume

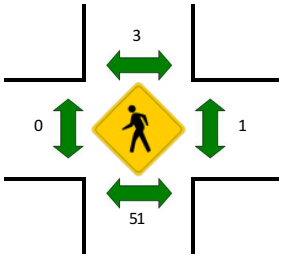
LOCATION: 11.Wailea Alanui Dr -- Wailea Ike Dr
CITY/STATE: Wailea, HI

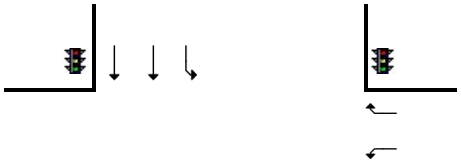
QC JOB #: 16267421
DATE: Thu, May 9 2024

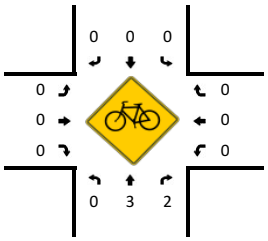
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

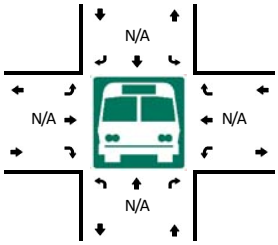




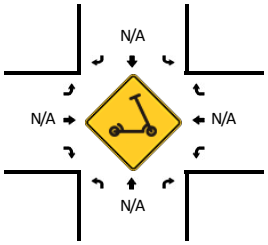












15-Min Count Period Beginning At	11.Wailea Alanui Dr (Northbound)				11.Wailea Alanui Dr (Southbound)				Wailea Ike Dr (Eastbound)				Wailea Ike Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	4	20	0	11	28	0	0	0	0	0	0	69	0	15	0	147	
6:15 AM	0	9	11	0	13	42	0	0	0	0	0	0	83	0	22	0	180	
6:30 AM	0	17	36	0	12	38	0	0	0	0	0	0	91	0	21	0	215	
6:45 AM	0	11	10	0	14	40	0	0	0	0	0	0	96	0	31	0	202	744
7:00 AM	0	20	40	0	26	47	0	1	0	0	0	0	74	0	32	0	240	837
7:15 AM	0	16	30	0	27	39	0	0	0	0	0	0	93	0	35	0	240	897
7:30 AM	0	28	16	0	32	71	0	0	0	0	0	0	96	0	42	0	285	967
7:45 AM	0	23	30	0	26	83	0	0	0	0	0	0	101	0	38	1	302	1067
8:00 AM	0	23	32	0	21	60	0	0	0	0	0	0	93	0	26	1	256	1083
8:15 AM	0	28	31	0	27	59	0	0	0	0	0	0	85	0	37	0	267	1110
8:30 AM	0	20	30	0	22	56	0	0	0	0	0	0	88	0	43	0	259	1084
8:45 AM	0	31	45	0	13	64	0	0	0	0	0	0	88	0	23	1	265	1047

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	92	120	0	104	332	0	0	0	0	0	0	404	0	152	4	1208
Heavy Trucks	0	8	0		0	12	0		0	0	0		12	0	0		32
Buses																	
Pedestrians		52				4				0				4			60
Bicycles	0	0	4		0	0	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 7/15/2024 6:10 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

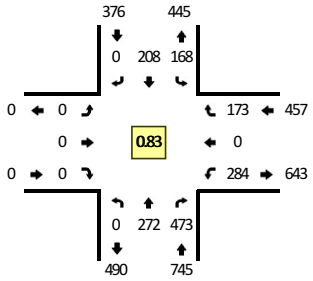
Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: 11.Wailea Alanui Dr -- Wailea Ike Dr
CITY/STATE: Wailea, HI

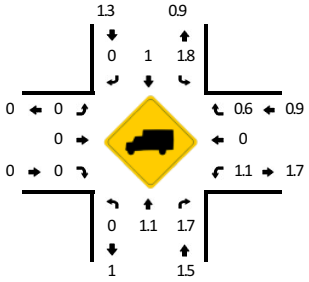
QC JOB #: 16267422
DATE: Thu, May 9 2024

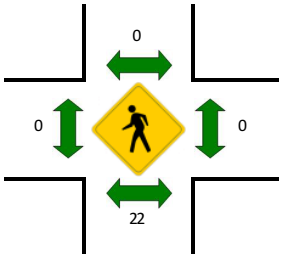
Peak-Hour: 3:30 PM -- 4:30 PM
Peak 15-Min: 4:00 PM -- 4:15 PM

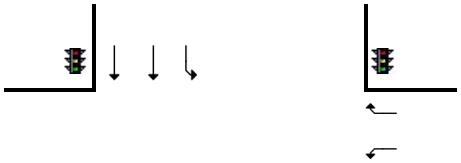


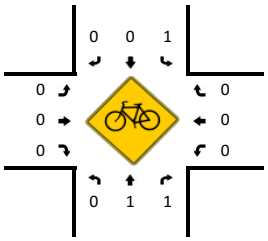


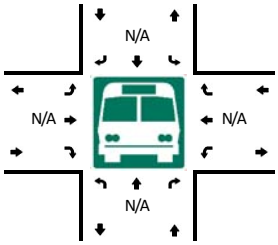
TRUE DATA TO IMPROVE MOBILITY



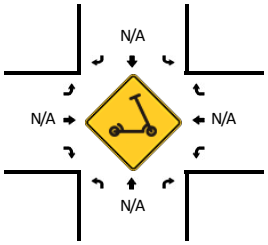












15-Min Count Period Beginning At	11.Wailea Alanui Dr (Northbound)				11.Wailea Alanui Dr (Southbound)				Wailea Ike Dr (Eastbound)				Wailea Ike Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	0	80	75	0	54	45	0	0	0	0	0	0	47	0	36	0	337	
12:15 PM	0	46	68	0	38	46	0	0	0	0	0	0	59	0	41	0	298	
12:30 PM	0	57	70	0	44	68	0	1	0	0	0	0	49	0	34	0	323	
12:45 PM	0	60	53	0	37	75	0	0	0	0	0	0	75	0	41	0	341	1299
1:00 PM	0	62	102	0	33	65	0	0	0	0	0	0	56	0	28	1	347	1309
1:15 PM	0	62	77	0	42	51	0	2	0	0	0	0	76	0	39	0	349	1360
1:30 PM	0	65	86	0	30	71	0	0	0	0	0	0	76	0	40	0	368	1405
1:45 PM	0	46	67	0	42	39	0	0	0	0	0	0	72	0	39	0	305	1369
2:00 PM	0	52	104	0	27	42	0	0	0	0	0	0	62	0	32	0	319	1341
2:15 PM	0	44	91	0	30	63	0	0	0	0	0	0	64	0	31	0	323	1315
2:30 PM	0	46	75	0	43	61	0	0	0	0	0	0	80	0	46	1	352	1299
2:45 PM	0	49	76	0	27	61	0	0	0	0	0	0	50	0	27	0	290	1284
3:00 PM	0	55	133	0	42	57	0	0	0	0	0	0	90	0	34	0	411	1376
3:15 PM	0	47	107	0	47	49	0	0	0	0	0	0	74	0	38	0	362	1415
3:30 PM	0	73	101	0	45	56	0	0	0	0	0	0	76	0	33	1	385	1448
3:45 PM	0	46	108	0	43	32	0	0	0	0	0	0	75	0	35	0	339	1497
4:00 PM	0	90	159	0	42	63	0	0	0	0	0	0	68	0	53	1	476	1562
4:15 PM	0	63	105	0	38	57	0	0	0	0	0	0	63	0	52	0	378	1578
4:30 PM	0	74	119	0	40	55	0	1	0	0	0	0	58	0	37	0	384	1577
4:45 PM	0	49	99	0	39	61	0	0	0	0	0	0	46	0	44	0	338	1576

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	360	636	0	168	252	0	0	0	0	0	0	272	0	212	4	1904
Heavy Trucks	0	4	8		0	0	0		0	0	0		0	0	0		12
Buses																	
Pedestrians		12				0				0				0			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:10 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

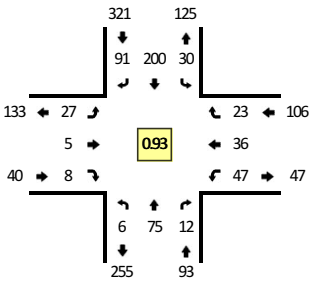
Type of peak hour being reported: User-Defined

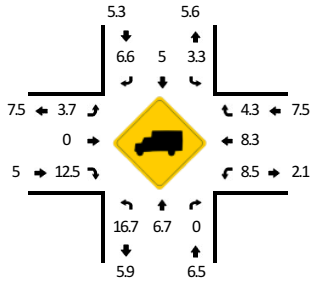
Method for determining peak hour: Total Entering Volume

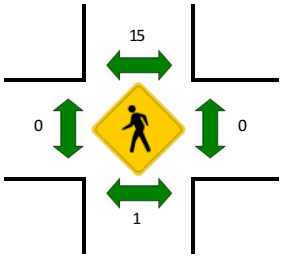
LOCATION: 12.Makena Alanui Dr -- Kaukahi St
CITY/STATE: Wailea, HI

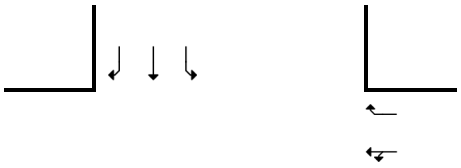
QC JOB #: 16267423
DATE: Thu, May 9 2024

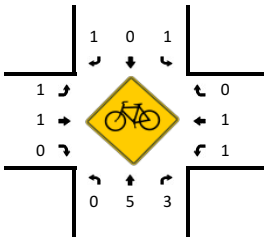
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

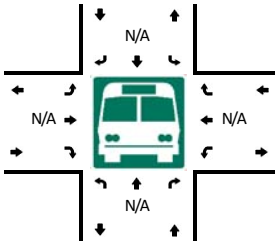




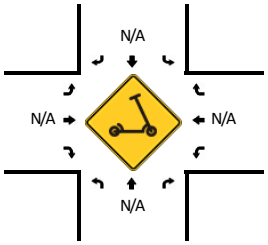












15-Min Count Period Beginning At	12.Makena Alanui Dr (Northbound)				12.Makena Alanui Dr (Southbound)				Kaukahi St (Eastbound)				Kaukahi St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	5	1	0	0	41	7	0	1	0	0	0	7	4	0	0	66	
6:15 AM	0	10	0	0	0	58	9	0	0	0	0	0	9	2	3	0	91	
6:30 AM	1	12	2	0	1	64	19	1	4	1	0	0	7	6	3	0	121	
6:45 AM	0	13	2	0	2	79	18	0	4	3	2	0	9	7	3	0	142	420
7:00 AM	1	11	3	0	0	48	17	0	12	0	2	0	6	8	1	0	109	463
7:15 AM	1	18	2	0	4	33	22	0	6	3	1	0	7	4	5	0	106	478
7:30 AM	1	12	2	0	6	53	28	0	5	2	2	0	13	5	7	0	136	493
7:45 AM	0	25	3	0	9	50	32	0	8	3	4	0	7	5	4	0	150	501
8:00 AM	2	17	3	0	11	49	14	0	7	0	1	0	13	13	8	0	138	530
8:15 AM	3	21	4	0	4	48	17	0	7	0	1	0	14	13	4	0	136	560
8:30 AM	1	20	4	0	11	54	19	1	7	0	2	0	10	5	5	0	139	563
8:45 AM	1	21	5	0	7	63	12	0	3	1	1	0	19	2	7	0	142	555

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	100	12	0	36	200	128	0	32	12	16	0	28	20	16	0	600
Heavy Trucks	0	12	0		0	8	8		0	0	4		0	4	0		36
Buses																	
Pedestrians		0				28				0				0			28
Bicycles	0	8	8		4	0	0		0	4	0		0	0	0		24
Scooters																	

Comments:

Report generated on 7/15/2024 6:10 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: 12.Makena Alanui Dr -- Kaukahi St

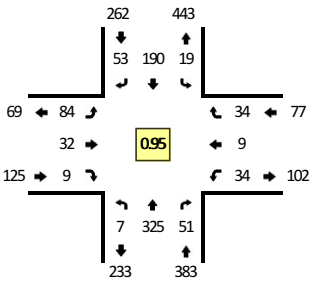
CITY/STATE: Wailea, HI

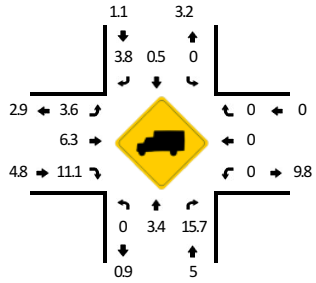
QC JOB #: 16267424

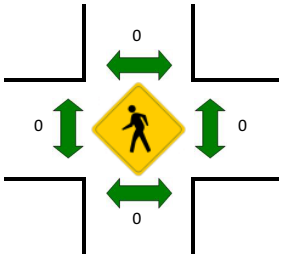
DATE: Thu, May 9 2024

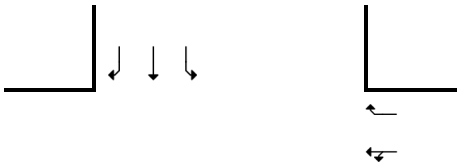
Peak-Hour: 3:30 PM -- 4:30 PM

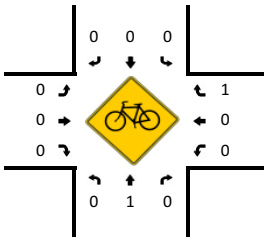
Peak 15-Min: 4:00 PM -- 4:15 PM

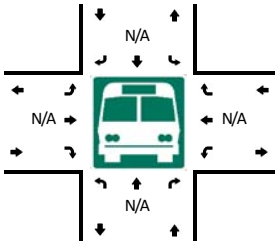




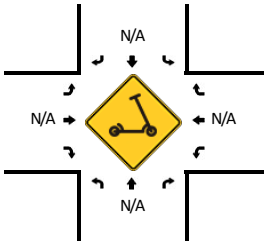












15-Min Count Period Beginning At	12.Makena Alanui Dr (Northbound)				12.Makena Alanui Dr (Southbound)				Kaukahi St (Eastbound)				Kaukahi St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	3	84	3	0	7	53	11	0	10	6	1	0	10	5	6	0	199	
12:15 PM	1	69	6	0	6	49	12	0	14	7	0	0	9	1	2	0	176	
12:30 PM	1	53	11	0	9	44	13	0	16	3	3	0	9	4	6	0	172	
12:45 PM	1	59	12	0	5	63	20	0	10	3	2	0	6	2	10	0	193	740
1:00 PM	1	71	10	0	5	43	16	0	20	3	5	0	12	2	5	0	193	734
1:15 PM	0	69	9	0	4	41	7	2	13	1	1	0	7	1	3	0	158	716
1:30 PM	1	63	8	0	1	58	12	0	8	4	0	0	8	5	7	0	175	719
1:45 PM	0	54	7	0	1	30	19	0	7	3	2	0	5	2	6	0	136	662
2:00 PM	4	50	6	0	5	35	12	0	10	4	2	0	6	2	5	0	141	610
2:15 PM	1	44	18	0	2	47	8	0	11	4	1	0	7	4	5	0	152	604
2:30 PM	2	64	11	0	5	46	16	0	11	5	2	0	3	3	2	0	170	599
2:45 PM	1	57	6	0	6	41	11	0	13	4	2	0	6	3	3	0	153	616
3:00 PM	0	85	17	0	5	36	22	1	15	8	4	0	2	7	4	0	206	681
3:15 PM	1	67	11	0	4	37	14	0	10	7	1	0	6	6	4	0	168	697
3:30 PM	1	107	10	0	7	41	16	0	13	4	0	0	10	4	9	0	222	749
3:45 PM	2	83	16	0	6	45	14	0	20	9	2	0	6	3	9	0	215	811
4:00 PM	2	79	8	0	4	49	8	0	36	12	3	0	13	1	9	0	224	829
4:15 PM	2	56	17	0	2	55	15	0	15	7	4	0	5	1	7	0	186	847
4:30 PM	2	61	7	0	9	41	12	1	17	4	5	0	9	4	8	0	180	805
4:45 PM	1	53	7	0	4	51	9	0	15	4	0	0	6	0	4	0	154	744

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	316	32	0	16	196	32	0	144	48	12	0	52	4	36	0	896
Heavy Trucks	0	4	4		0	0	0		8	4	0		0	0	0		20
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:10 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

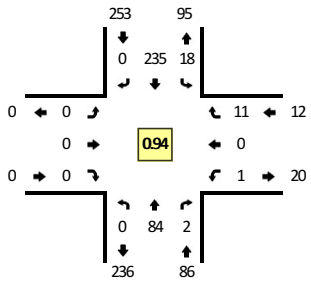
Type of peak hour being reported: User-Defined

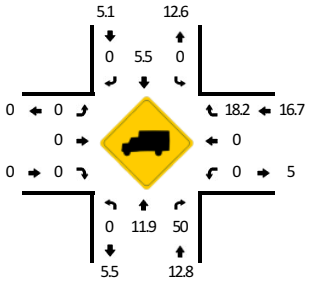
Method for determining peak hour: Total Entering Volume

LOCATION: 13.Makena Alanui Dr -- Wailea Golf Club Dr
CITY/STATE: Wailea, HI

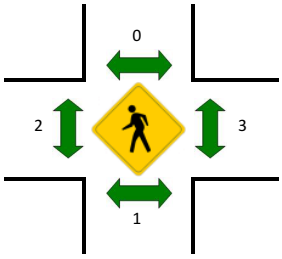
QC JOB #: 16267425
DATE: Thu, May 9 2024

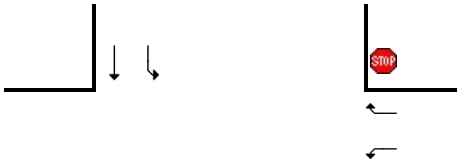
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:00 AM -- 8:15 AM

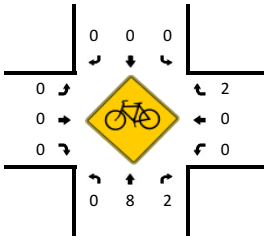


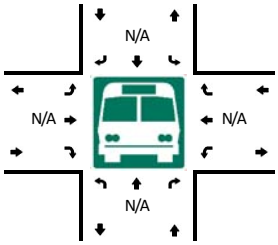


TRUE DATA TO IMPROVE MOBILITY

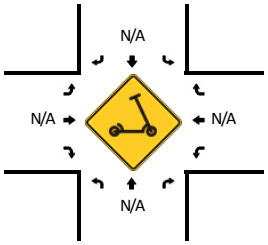












15-Min Count Period Beginning At	13.Makena Alanui Dr (Northbound)				13.Makena Alanui Dr (Southbound)				Wailea Golf Club Dr (Eastbound)				Wailea Golf Club Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	6	0	0	4	40	0	0	0	0	0	0	0	0	0	0	50	
6:15 AM	0	10	0	0	7	64	0	0	0	0	0	0	0	0	0	0	81	
6:30 AM	0	11	0	0	8	64	0	0	0	0	0	0	0	0	3	0	86	
6:45 AM	0	13	0	0	8	80	0	0	0	0	0	0	0	0	3	0	104	321
7:00 AM	0	17	0	0	6	46	0	0	0	0	0	0	0	0	1	0	70	341
7:15 AM	0	17	1	0	4	39	0	0	0	0	0	0	0	0	2	0	63	323
7:30 AM	0	15	0	0	4	57	0	0	0	0	0	0	0	0	3	0	79	316
7:45 AM	0	24	1	0	4	59	0	0	0	0	0	0	0	0	2	0	90	302
8:00 AM	0	19	1	0	5	63	0	0	0	0	0	0	1	0	4	0	93	325
8:15 AM	0	26	0	0	5	56	0	0	0	0	0	0	0	0	2	0	89	351
8:30 AM	0	23	1	0	7	54	0	1	0	0	0	0	0	0	3	0	89	361
8:45 AM	0	20	1	0	6	78	0	0	0	0	0	0	0	0	6	0	111	382

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	76	4	0	20	252	0	0	0	0	0	0	4	0	16	0	372
Heavy Trucks	0	8	0		0	8	0		0	0	0		0	0	0		16
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	8	0		0	0	0		0	0	0		0	0	0		8
Scooters																	

Comments:

Report generated on 7/15/2024 6:11 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

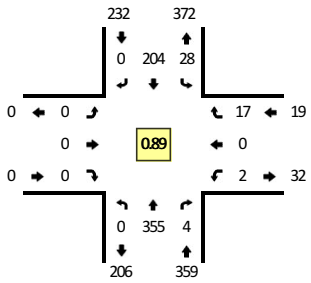
Type of peak hour being reported: User-Defined | Method for determining peak hour: Total Entering Volume

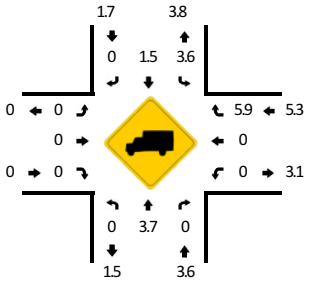
LOCATION: 13.Makena Alanui Dr -- Wailea Golf Club Dr | **QC JOB #:** 16267426

CITY/STATE: Wailea, HI | **DATE:** Thu, May 9 2024

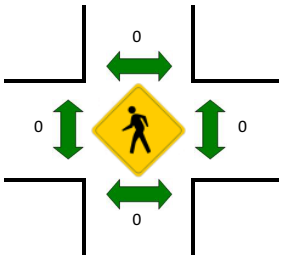
Peak-Hour: 3:30 PM -- 4:30 PM

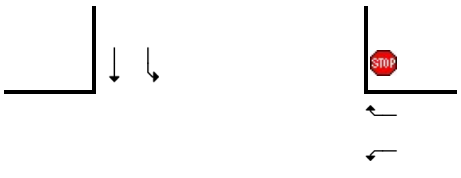
Peak 15-Min: 3:30 PM -- 3:45 PM

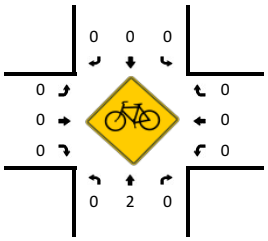


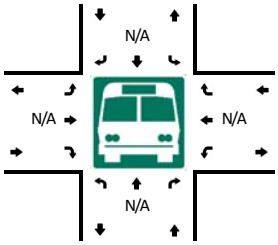


TRUE DATA TO IMPROVE MOBILITY

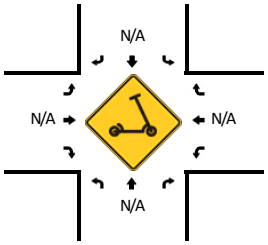












15-Min Count Period Beginning At	13.Makena Alanui Dr (Northbound)				13.Makena Alanui Dr (Southbound)				Wailea Golf Club Dr (Eastbound)				Wailea Golf Club Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	0	81	1	0	7	60	0	0	0	0	0	0	1	0	7	0	157	
12:15 PM	0	61	0	0	6	46	0	0	0	0	0	0	1	0	9	0	123	
12:30 PM	0	54	1	0	5	51	0	0	0	0	0	0	1	0	8	0	120	
12:45 PM	0	64	1	0	6	66	0	0	0	0	0	0	3	0	7	0	147	547
1:00 PM	0	86	2	0	7	53	0	0	0	0	0	0	0	0	6	0	154	544
1:15 PM	0	68	1	0	12	35	0	0	0	0	0	0	0	0	8	0	124	545
1:30 PM	0	57	3	0	3	61	0	0	0	0	0	0	1	0	12	0	137	562
1:45 PM	0	48	0	0	6	33	0	0	0	0	0	0	1	0	9	0	97	512
2:00 PM	0	61	0	0	3	40	0	0	0	0	0	0	1	0	5	0	110	468
2:15 PM	0	60	1	0	6	47	0	0	0	0	0	0	1	0	5	0	120	464
2:30 PM	0	61	1	0	8	37	0	0	0	0	0	0	1	0	8	0	116	443
2:45 PM	0	55	0	0	3	50	0	0	0	0	0	0	0	0	6	0	114	460
3:00 PM	0	98	0	0	3	39	0	0	0	0	0	0	0	0	5	0	145	495
3:15 PM	0	79	0	0	4	39	0	0	0	0	0	0	0	0	9	0	131	506
3:30 PM	0	114	3	0	5	47	0	0	0	0	0	0	1	0	1	0	171	561
3:45 PM	0	94	0	0	6	43	0	0	0	0	0	0	0	0	5	0	148	595
4:00 PM	0	82	1	0	8	55	0	0	0	0	0	0	0	0	7	0	153	603
4:15 PM	0	65	0	0	9	59	0	0	0	0	0	0	1	0	4	0	138	610
4:30 PM	0	65	1	0	3	54	0	0	0	0	0	0	0	0	7	0	130	569
4:45 PM	0	57	0	0	7	48	0	0	0	0	0	0	1	0	7	0	120	541

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	456	12	0	20	188	0	0	0	0	0	0	4	0	4	0	684
Heavy Trucks	0	20	0		0	4	0		0	0	0		0	0	0		24
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:11 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

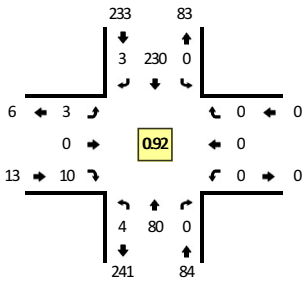
Type of peak hour being reported: User-Defined

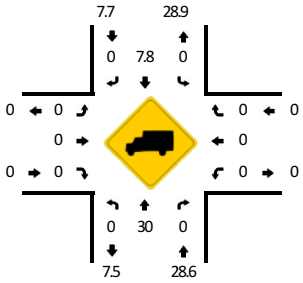
Method for determining peak hour: Total Entering Volume

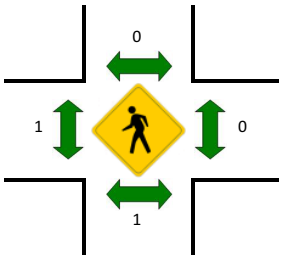
LOCATION: 14.Makena Alanui Dr -- Makena Rd (North)
CITY/STATE: Wailea, HI

QC JOB #: 16267427
DATE: Thu, May 9 2024

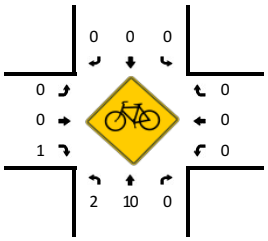
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:00 AM -- 8:15 AM

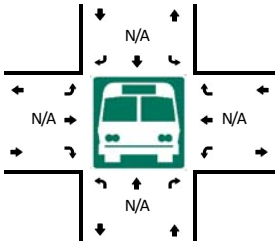




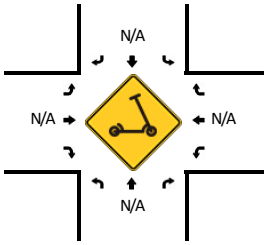












15-Min Count Period Beginning At	14.Makena Alanui Dr (Northbound)				14.Makena Alanui Dr (Southbound)				Makena Rd (North) (Eastbound)				Makena Rd (North) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	4	0	0	0	38	0	0	0	0	0	0	0	0	0	0	42	
6:15 AM	1	10	0	0	0	64	0	0	0	0	1	0	0	0	0	0	76	
6:30 AM	0	10	0	0	0	64	0	0	1	0	0	0	0	0	0	0	75	
6:45 AM	1	11	0	0	0	80	1	0	0	0	0	0	0	0	0	0	93	286
7:00 AM	3	17	0	0	0	43	1	0	0	0	1	0	0	0	0	0	65	309
7:15 AM	0	17	0	0	0	39	0	0	1	0	0	0	0	0	0	0	57	290
7:30 AM	0	13	0	0	0	56	1	0	1	0	1	0	0	0	0	0	72	287
7:45 AM	0	23	0	1	0	58	1	0	0	0	3	0	0	0	0	0	86	280
8:00 AM	2	21	0	0	0	63	0	0	0	0	4	0	0	0	0	0	90	305
8:15 AM	1	23	0	0	0	53	1	0	2	0	2	0	0	0	0	0	82	330
8:30 AM	0	23	0	0	0	52	3	0	2	0	3	0	0	0	0	0	83	341
8:45 AM	1	21	0	0	0	78	0	0	0	0	1	0	0	0	0	0	101	356

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	84	0	0	0	252	0	0	0	0	16	0	0	0	0	0	360
Heavy Trucks	0	28	0		0	12	0		0	0	0		0	0	0		40
Buses																	
Pedestrians		4				0				0				0			4
Bicycles	4	4	0		0	0	0		0	0	0		0	0	0		8
Scooters																	

Comments:

Report generated on 7/15/2024 6:11 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

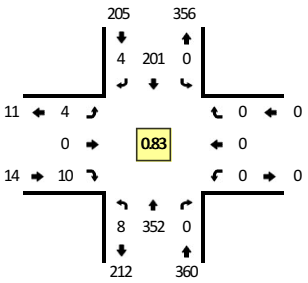
Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

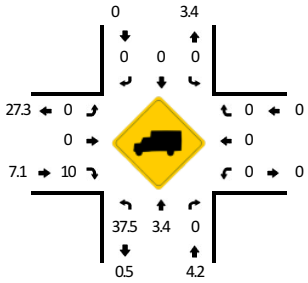
LOCATION: 14.Makena Alanui Dr -- Makena Rd (North)
CITY/STATE: Wailea, HI

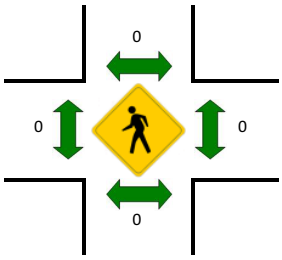
QC JOB #: 16267428
DATE: Thu, May 9 2024

Peak-Hour: 3:30 PM -- 4:30 PM
Peak 15-Min: 3:30 PM -- 3:45 PM

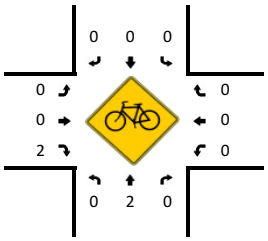


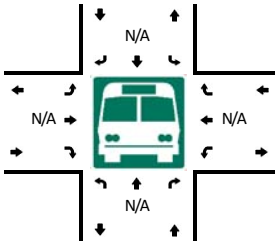




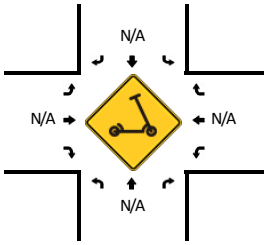












15-Min Count Period Beginning At	14.Makena Alanui Dr (Northbound)				14.Makena Alanui Dr (Southbound)				Makena Rd (North) (Eastbound)				Makena Rd (North) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	0	79	0	1	0	58	3	0	1	0	2	0	0	0	0	0	144	
12:15 PM	1	59	0	0	0	47	0	0	1	0	3	0	0	0	0	0	111	
12:30 PM	0	53	0	0	0	51	1	0	3	0	4	0	0	0	0	0	112	
12:45 PM	0	61	0	0	0	68	3	0	3	0	3	0	0	0	0	0	138	505
1:00 PM	2	88	0	0	0	50	3	0	3	0	5	0	0	0	0	0	151	512
1:15 PM	2	66	0	1	0	37	0	0	1	0	4	0	0	0	0	0	111	512
1:30 PM	3	59	0	0	0	61	0	0	0	0	3	0	0	0	0	0	126	526
1:45 PM	3	46	0	0	0	33	2	0	3	0	4	0	0	0	0	0	91	479
2:00 PM	0	56	0	0	0	42	0	0	3	0	0	0	0	0	0	0	101	429
2:15 PM	1	60	0	0	0	47	0	0	1	0	1	0	0	0	0	0	110	428
2:30 PM	1	60	0	0	0	38	1	0	2	0	0	0	0	0	0	0	102	404
2:45 PM	2	55	0	0	0	49	1	0	1	0	6	0	0	0	0	0	114	427
3:00 PM	1	96	0	0	0	39	0	0	1	0	6	0	0	0	0	0	143	469
3:15 PM	1	76	0	1	0	40	0	0	4	0	5	0	0	0	0	0	127	486
3:30 PM	3	115	0	1	0	47	0	0	1	0	7	0	0	0	0	0	174	558
3:45 PM	1	94	0	0	0	42	0	0	0	0	1	0	0	0	0	0	138	582
4:00 PM	2	81	0	0	0	52	1	0	2	0	1	0	0	0	0	0	139	578
4:15 PM	1	62	0	0	0	60	3	0	1	0	1	0	0	0	0	0	128	579
4:30 PM	1	64	0	0	0	54	0	0	3	0	3	0	0	0	0	0	125	530
4:45 PM	2	53	0	0	0	45	2	0	2	0	3	0	0	0	0	0	107	499

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	460	0	4	0	188	0	0	4	0	28	0	0	0	0	0	696
Heavy Trucks	4	16	0		0	0	0		0	0	4		0	0	0		24
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:12 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

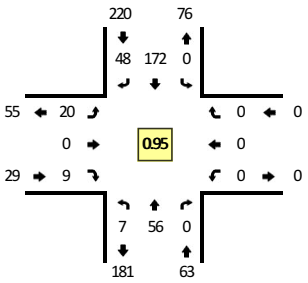
Type of peak hour being reported: User-Defined

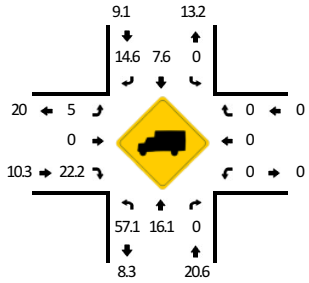
Method for determining peak hour: Total Entering Volume

LOCATION: 15.Makena Alanui Dr -- Makena Rd (South)
CITY/STATE: Makena, HI

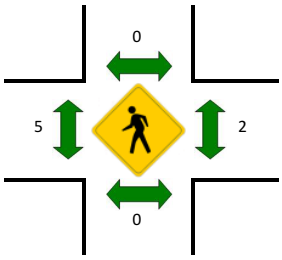
QC JOB #: 16267429
DATE: Thu, May 9 2024

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:15 AM -- 8:30 AM

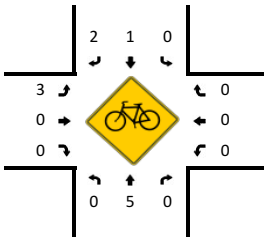


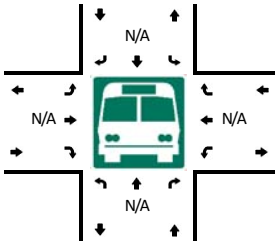


TRUE DATA TO IMPROVE MOBILITY

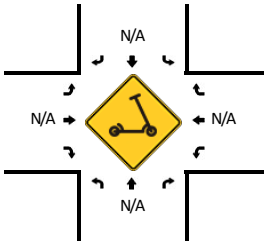












15-Min Count Period Beginning At	15.Makena Alanui Dr (Northbound)				15.Makena Alanui Dr (Southbound)				Makena Rd (South) (Eastbound)				Makena Rd (South) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	4	0	0	0	34	2	0	2	0	0	0	0	0	0	0	42	
6:15 AM	3	5	0	0	0	53	12	0	4	0	0	0	0	0	0	0	77	
6:30 AM	0	7	0	0	0	51	7	0	3	0	4	0	0	0	0	0	72	
6:45 AM	0	7	0	0	0	61	15	0	5	0	1	0	0	0	0	0	89	280
7:00 AM	4	14	0	0	0	39	5	0	6	0	2	0	0	0	0	0	70	308
7:15 AM	5	8	0	0	0	32	4	0	3	0	1	0	0	0	0	0	53	284
7:30 AM	1	13	0	0	0	41	11	0	2	0	0	0	0	0	0	0	68	280
7:45 AM	2	14	0	0	0	44	11	0	6	0	4	0	0	0	0	0	81	272
8:00 AM	3	13	0	0	0	41	12	0	8	0	4	0	0	0	0	0	81	283
8:15 AM	1	16	0	0	0	46	14	0	4	0	1	0	0	0	0	0	82	312
8:30 AM	1	16	0	0	0	38	8	0	6	0	5	0	0	0	0	0	74	318
8:45 AM	0	14	0	0	0	58	16	0	3	0	2	0	0	0	0	0	93	330

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	64	0	0	0	184	56	0	16	0	4	0	0	0	0	0	328
Heavy Trucks	0	4	0		0	20	0		0	0	0		0	0	0		24
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	4	0		0	0	0		0	0	0		0	0	0		4
Scooters																	

Comments:

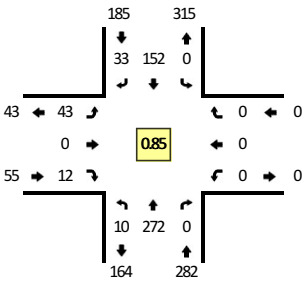
Report generated on 7/15/2024 6:12 PM

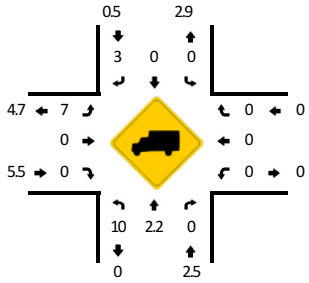
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

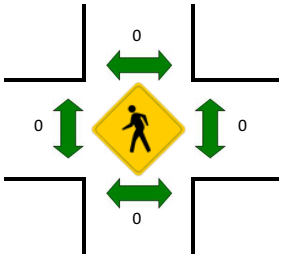
Type of peak hour being reported: User-Defined | Method for determining peak hour: Total Entering Volume

LOCATION: 15.Makena Alanui Dr -- Makena Rd (South) | **QC JOB #:** 16267430
CITY/STATE: Makena, HI | **DATE:** Thu, May 9 2024

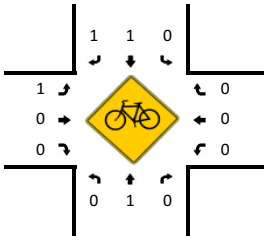
Peak-Hour: 3:30 PM -- 4:30 PM
Peak 15-Min: 3:30 PM -- 3:45 PM

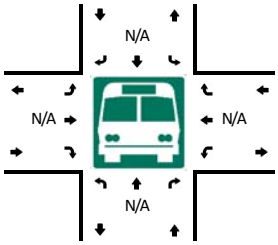




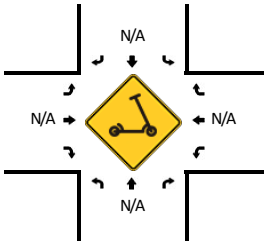












15-Min Count Period Beginning At	15.Makena Alanui Dr (Northbound)				15.Makena Alanui Dr (Southbound)				Makena Rd (South) (Eastbound)				Makena Rd (South) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	4	58	0	0	0	43	8	0	11	0	3	0	0	0	0	0	127	
12:15 PM	5	42	0	0	0	38	10	0	13	0	2	0	0	0	0	0	110	
12:30 PM	3	32	0	0	0	46	10	0	7	0	3	0	0	0	0	0	101	
12:45 PM	1	47	0	0	0	54	8	0	7	0	6	0	0	0	0	0	123	461
1:00 PM	3	67	0	0	0	46	7	0	8	0	5	0	0	0	0	0	136	470
1:15 PM	1	54	0	0	0	27	11	0	8	0	7	0	0	0	0	0	108	468
1:30 PM	0	40	0	0	0	48	11	0	9	0	4	0	0	0	0	0	112	479
1:45 PM	3	36	0	0	0	23	14	0	12	0	0	0	0	0	0	0	88	444
2:00 PM	3	49	0	0	0	34	3	0	4	0	6	0	0	0	0	0	99	407
2:15 PM	2	53	0	0	0	33	6	0	8	0	4	0	0	0	0	0	106	405
2:30 PM	7	52	0	0	0	29	7	0	7	0	3	0	0	0	0	0	105	398
2:45 PM	4	42	0	0	0	33	9	0	12	0	4	0	0	0	0	0	104	414
3:00 PM	8	80	0	0	0	34	7	0	6	0	4	0	0	0	0	0	139	454
3:15 PM	2	62	0	0	0	35	4	0	16	0	10	0	0	0	0	0	129	477
3:30 PM	2	91	0	0	0	32	6	0	19	0	3	0	0	0	0	0	153	525
3:45 PM	2	70	0	0	0	39	7	0	9	0	2	0	0	0	0	0	129	550
4:00 PM	2	56	0	0	0	39	11	0	12	0	1	0	0	0	0	0	121	532
4:15 PM	4	55	0	0	0	42	9	0	3	0	6	0	0	0	0	0	119	522
4:30 PM	3	53	0	0	0	47	11	0	5	0	2	0	0	0	0	0	121	490
4:45 PM	0	48	0	0	0	39	8	0	8	0	2	0	0	0	0	0	105	466

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	364	0	0	0	128	24	0	76	0	12	0	0	0	0	0	612
Heavy Trucks	0	4	0		0	0	0		4	0	0		0	0	0		8
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:12 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: 16.Makena Alanui Dr -- Honoiki St

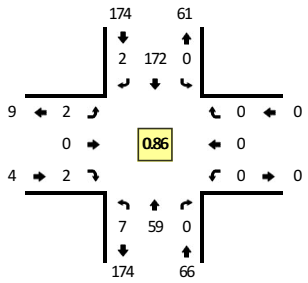
CITY/STATE: Makena, HI

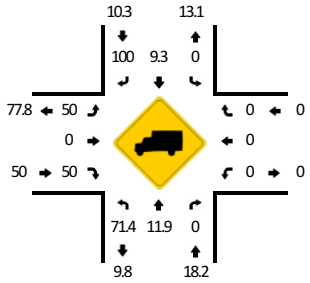
QC JOB #: 16267431

DATE: Thu, May 9 2024

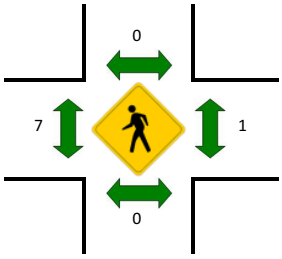
Peak-Hour: 7:30 AM -- 8:30 AM

Peak 15-Min: 7:45 AM -- 8:00 AM

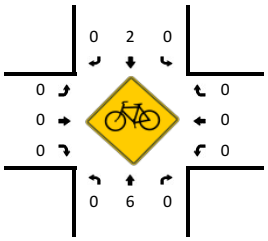


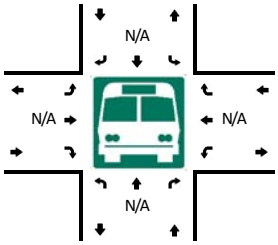


TRUE DATA TO IMPROVE MOBILITY

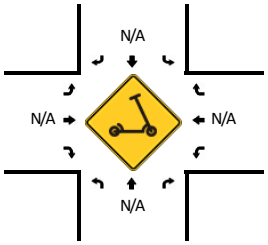












15-Min Count Period Beginning At	16.Makena Alanui Dr (Northbound)				16.Makena Alanui Dr (Southbound)				Honoiki St (Eastbound)				Honoiki St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	4	0	0	0	33	0	0	0	0	0	0	0	0	0	0	37	
6:15 AM	0	8	0	0	0	44	0	0	0	0	0	0	0	0	0	0	52	
6:30 AM	0	6	0	0	0	54	0	0	0	0	0	0	0	0	0	0	60	
6:45 AM	0	7	0	0	0	69	0	0	0	0	0	0	0	0	0	0	76	225
7:00 AM	0	20	0	0	0	37	0	0	0	0	0	0	0	0	0	0	57	245
7:15 AM	3	15	0	0	0	34	0	0	0	0	0	0	0	0	0	0	52	245
7:30 AM	2	12	0	0	0	36	0	0	2	0	2	0	0	0	0	0	54	239
7:45 AM	3	15	0	0	0	53	0	0	0	0	0	0	0	0	0	0	71	234
8:00 AM	0	14	0	0	0	38	1	0	0	0	0	0	0	0	0	0	53	230
8:15 AM	2	18	0	0	0	45	1	0	0	0	0	0	0	0	0	0	66	244
8:30 AM	0	18	0	0	0	44	0	0	0	0	0	0	0	0	0	0	62	252
8:45 AM	0	18	0	0	0	58	0	0	0	0	0	0	0	0	0	0	76	257

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	60	0	0	0	212	0	0	0	0	0	0	0	0	0	0	284
Heavy Trucks	8	8	0		0	24	0		0	0	0		0	0	0		40
Buses																	
Pedestrians		0				0				20				4			24
Bicycles	0	12	0		0	4	0		0	0	0		0	0	0		16
Scooters																	

Comments:

Report generated on 7/15/2024 6:12 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: 16.Makena Alanui Dr -- Honoiki St

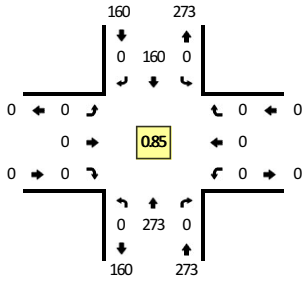
CITY/STATE: Makena, HI

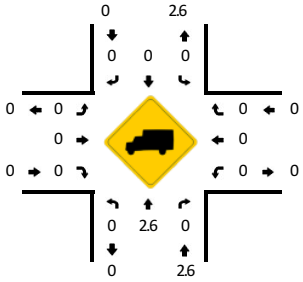
QC JOB #: 16267432

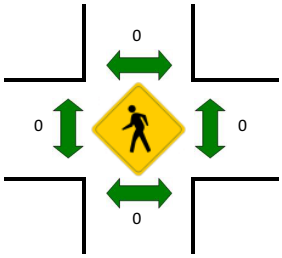
DATE: Thu, May 9 2024

Peak-Hour: 3:30 PM -- 4:30 PM

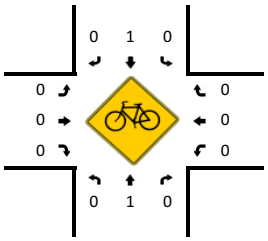
Peak 15-Min: 3:30 PM -- 3:45 PM

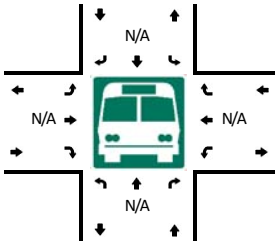




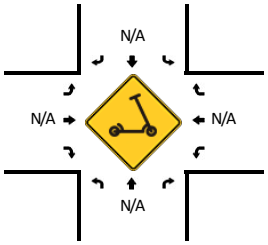












15-Min Count Period Beginning At	16.Makena Alanui Dr (Northbound)				16.Makena Alanui Dr (Southbound)				Honoiki St (Eastbound)				Honoiki St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	0	62	0	0	0	49	1	0	0	0	0	0	0	0	0	0	112	
12:15 PM	1	49	0	0	0	39	1	0	0	0	0	0	0	0	0	0	90	
12:30 PM	0	32	0	0	0	47	0	0	0	0	1	0	0	0	0	0	80	
12:45 PM	0	50	0	0	0	59	0	0	1	0	0	0	0	0	0	0	110	392
1:00 PM	0	70	0	0	0	51	0	0	0	0	0	0	0	0	0	0	121	401
1:15 PM	1	56	0	0	0	33	0	0	0	0	0	0	0	0	0	0	90	401
1:30 PM	1	35	0	0	0	51	0	0	0	0	0	0	0	0	0	0	87	408
1:45 PM	1	42	0	0	0	26	0	0	1	0	0	0	0	0	0	0	70	368
2:00 PM	1	52	0	0	0	41	1	0	0	0	0	0	0	0	0	0	95	342
2:15 PM	0	58	0	0	0	37	0	0	0	0	0	0	0	0	0	0	95	347
2:30 PM	2	54	0	0	0	32	0	0	0	0	0	0	0	0	0	0	88	348
2:45 PM	2	47	0	0	0	41	0	0	0	0	2	0	0	0	0	0	92	370
3:00 PM	0	81	0	0	0	36	0	0	1	0	0	0	0	0	0	0	118	393
3:15 PM	0	60	0	0	0	46	0	0	0	0	0	0	0	0	0	0	106	404
3:30 PM	0	94	0	0	0	34	0	0	0	0	0	0	0	0	0	0	128	444
3:45 PM	0	66	0	0	0	43	0	0	0	0	0	0	0	0	0	0	109	461
4:00 PM	0	59	0	0	0	37	0	0	0	0	0	0	0	0	0	0	96	439
4:15 PM	0	54	0	0	0	46	0	0	0	0	0	0	0	0	0	0	100	433
4:30 PM	0	55	0	0	0	47	0	0	0	0	0	0	0	0	0	0	102	407
4:45 PM	0	50	0	0	0	43	0	0	0	0	0	0	0	0	0	0	93	391

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	376	0	0	0	136	0	0	0	0	0	0	0	0	0	0	512
Heavy Trucks	0	8	0		0	0	0		0	0	0		0	0	0		8
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:13 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

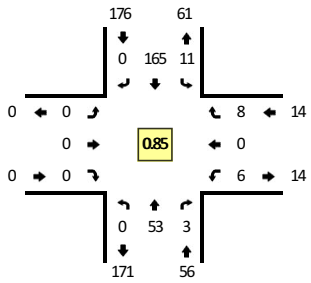
Type of peak hour being reported: User-Defined

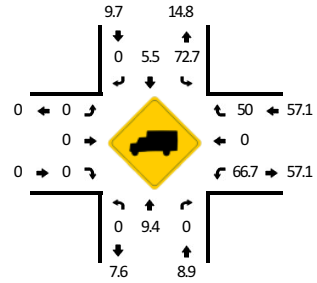
Method for determining peak hour: Total Entering Volume

LOCATION: 17.Makena Alanui Dr -- Makena GC Dwy
CITY/STATE: Makena, HI

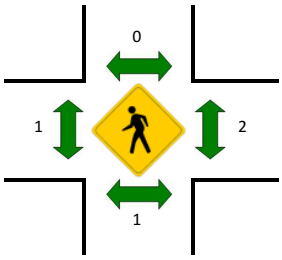
QC JOB #: 16267433
DATE: Thu, May 9 2024

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

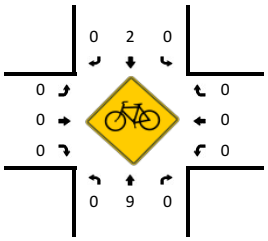


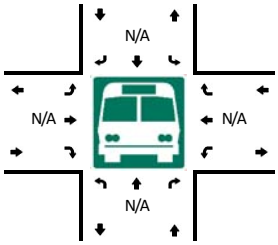


TRUE DATA TO IMPROVE MOBILITY

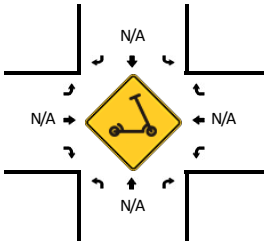












15-Min Count Period Beginning At	17.Makena Alanui Dr (Northbound)				17.Makena Alanui Dr (Southbound)				Makena GC Dwy (Eastbound)				Makena GC Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	3	0	0	14	19	0	0	0	0	0	0	0	0	1	0	37	
6:15 AM	0	7	1	0	12	32	0	0	0	0	0	0	1	0	1	0	54	
6:30 AM	0	4	2	0	23	33	0	0	0	0	0	0	1	0	1	0	64	
6:45 AM	0	7	4	0	14	53	0	0	0	0	0	0	2	0	0	0	80	235
7:00 AM	0	15	3	0	1	41	0	0	0	0	0	0	1	0	6	0	67	265
7:15 AM	0	11	3	0	4	30	0	0	0	0	0	0	4	0	6	0	58	269
7:30 AM	0	9	1	0	4	35	0	0	0	0	0	0	6	0	2	0	57	262
7:45 AM	0	15	1	0	2	51	0	0	0	0	0	0	0	0	3	0	72	254
8:00 AM	0	11	0	0	3	38	0	0	0	0	0	0	0	0	2	0	54	241
8:15 AM	0	18	1	0	2	41	0	0	0	0	0	0	0	0	1	0	63	246
8:30 AM	0	17	1	0	0	46	0	0	0	0	0	0	2	0	0	0	66	255
8:45 AM	0	17	0	0	1	55	0	0	0	0	0	0	1	0	1	0	75	258

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	60	4	0	8	204	0	0	0	0	0	0	0	0	12	0	288
Heavy Trucks	0	8	0		4	12	0		0	0	0		0	0	4		28
Buses																	
Pedestrians		4				0				4				4			12
Bicycles	0	12	0		0	0	0		0	0	0		0	0	0		12
Scooters																	

Comments:

Report generated on 7/15/2024 6:13 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

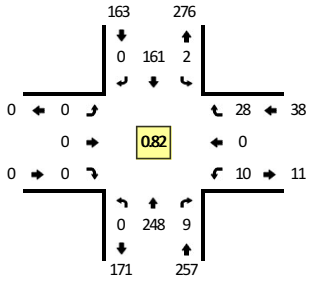
Type of peak hour being reported: User-Defined

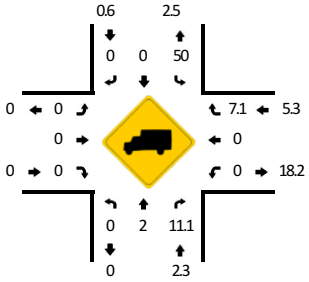
Method for determining peak hour: Total Entering Volume

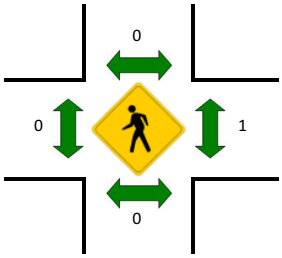
LOCATION: 17.Makena Alanui Dr -- Makena GC Dwy
CITY/STATE: Makena, HI

QC JOB #: 16267434
DATE: Thu, May 9 2024

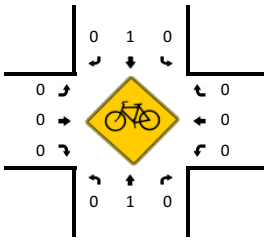
Peak-Hour: 3:30 PM -- 4:30 PM
Peak 15-Min: 3:30 PM -- 3:45 PM

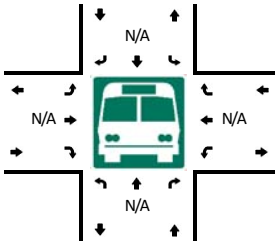




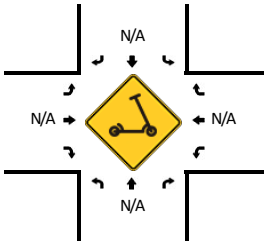












15-Min Count Period Beginning At	17.Makena Alanui Dr (Northbound)				17.Makena Alanui Dr (Southbound)				Makena GC Dwy (Eastbound)				Makena GC Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	0	57	3	0	3	48	0	0	0	0	0	0	3	0	4	0	118	
12:15 PM	0	48	3	0	4	36	0	0	0	0	0	0	2	0	1	0	94	
12:30 PM	0	31	2	0	1	48	0	0	0	0	0	0	5	0	4	0	91	
12:45 PM	0	47	1	0	2	55	0	0	0	0	0	0	0	0	1	0	106	409
1:00 PM	0	69	2	0	3	50	0	0	0	0	0	0	1	0	0	0	125	416
1:15 PM	0	57	1	0	2	28	0	0	0	0	0	0	0	0	2	0	90	412
1:30 PM	0	35	1	0	4	50	0	0	0	0	0	0	1	0	1	0	92	413
1:45 PM	0	41	3	0	0	26	0	0	0	0	0	0	4	0	2	0	76	383
2:00 PM	0	43	1	0	2	39	0	0	0	0	0	0	2	0	10	0	97	355
2:15 PM	0	51	3	0	1	36	0	0	0	0	0	0	0	0	7	0	98	363
2:30 PM	0	55	4	0	0	30	0	0	0	0	0	0	2	0	3	0	94	365
2:45 PM	0	46	1	0	3	39	0	0	0	0	0	0	1	0	4	0	94	383
3:00 PM	0	72	4	0	0	39	0	0	0	0	0	0	1	0	6	0	122	408
3:15 PM	0	52	3	0	2	40	0	0	0	0	0	0	6	0	7	0	110	420
3:30 PM	0	82	5	0	1	36	0	0	0	0	0	0	1	0	15	0	140	466
3:45 PM	0	56	3	0	1	42	0	0	0	0	0	0	5	0	9	0	116	488
4:00 PM	0	56	0	0	0	37	0	0	0	0	0	0	4	0	2	0	99	465
4:15 PM	0	54	1	0	0	46	0	0	0	0	0	0	0	0	2	0	103	458
4:30 PM	0	50	0	0	1	43	0	0	0	0	0	0	1	0	2	0	97	415
4:45 PM	0	50	0	0	0	44	0	0	0	0	0	0	0	0	0	0	94	393

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	328	20	0	4	144	0	0	0	0	0	0	4	0	60	0	560
Heavy Trucks	0	12	4		4	0	0		0	0	0		0	0	0		20
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:13 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

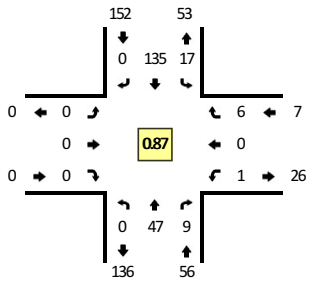
Type of peak hour being reported: User-Defined

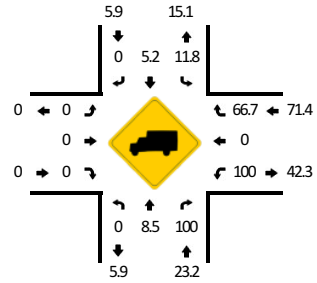
Method for determining peak hour: Total Entering Volume

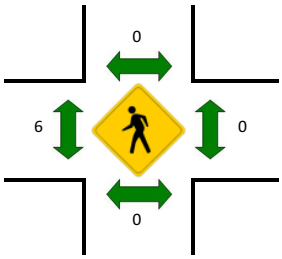
LOCATION: 18.Makena Alanui Dr -- Makena Tennis Dwy
CITY/STATE: Makena, HI

QC JOB #: 16267435
DATE: Thu, May 9 2024

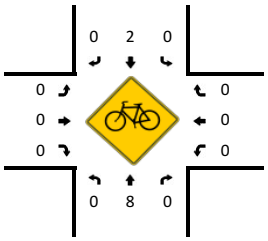
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

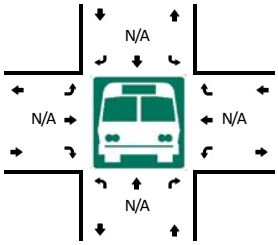




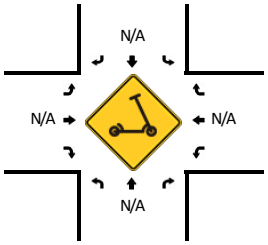












15-Min Count Period Beginning At	18.Makena Alanui Dr (Northbound)				18.Makena Alanui Dr (Southbound)				Makena Tennis Dwy (Eastbound)				Makena Tennis Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	1	0	0	2	13	0	0	0	0	0	0	0	0	0	0	16	
6:15 AM	0	5	0	0	2	26	0	0	0	0	0	0	0	0	0	0	33	
6:30 AM	0	5	2	0	3	23	0	0	0	0	0	0	0	0	0	0	33	
6:45 AM	0	5	1	0	5	32	0	0	0	0	0	0	0	0	0	0	43	125
7:00 AM	0	16	1	0	6	23	0	0	0	0	0	0	1	0	2	0	49	158
7:15 AM	0	9	2	0	3	26	0	0	0	0	0	0	0	0	1	0	41	166
7:30 AM	0	10	2	0	2	29	0	0	0	0	0	0	0	0	0	0	43	176
7:45 AM	0	14	2	0	9	36	0	0	0	0	0	0	0	0	1	0	62	195
8:00 AM	0	9	0	0	3	37	0	0	0	0	0	0	0	0	3	0	52	198
8:15 AM	0	14	5	0	3	33	0	0	0	0	0	0	1	0	2	0	58	215
8:30 AM	0	15	1	0	5	34	0	0	0	0	0	0	0	0	0	0	55	227
8:45 AM	0	17	8	0	7	46	0	0	0	0	0	0	1	0	1	0	80	245

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	56	8	0	36	144	0	0	0	0	0	0	0	0	4	0	248
Heavy Trucks	0	8	8		8	8	0		0	0	0		0	0	4		36
Buses																	
Pedestrians		0				0				8				0			8
Bicycles	0	8	0		0	4	0		0	0	0		0	0	0		12
Scooters																	

Comments:

Report generated on 7/15/2024 6:13 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

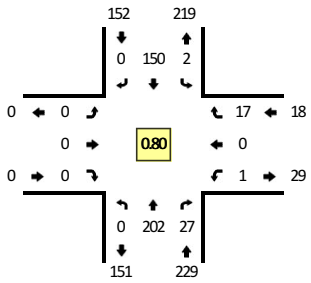
Type of peak hour being reported: User-Defined

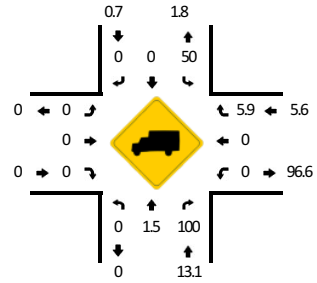
Method for determining peak hour: Total Entering Volume

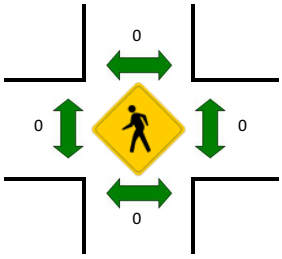
LOCATION: 18.Makena Alanui Dr -- Makena Tennis Dwy
CITY/STATE: Makena, HI

QC JOB #: 16267436
DATE: Thu, May 9 2024

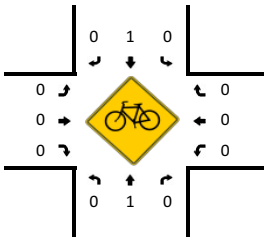
Peak-Hour: 3:30 PM -- 4:30 PM
Peak 15-Min: 3:30 PM -- 3:45 PM

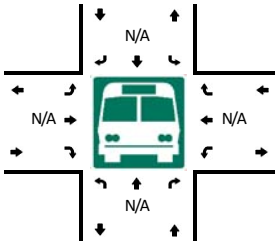




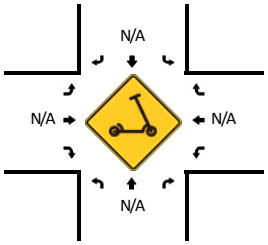












15-Min Count Period Beginning At	18.Makena Alanui Dr (Northbound)				18.Makena Alanui Dr (Southbound)				Makena Tennis Dwy (Eastbound)				Makena Tennis Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	0	48	0	0	2	44	0	0	0	0	0	0	0	0	3	0	97	
12:15 PM	0	41	8	0	1	32	0	0	0	0	0	0	0	0	3	0	85	
12:30 PM	0	35	3	0	5	41	0	0	0	0	0	0	0	0	2	0	86	
12:45 PM	0	41	0	0	2	49	0	0	0	0	0	0	0	0	3	0	95	363
1:00 PM	0	67	2	0	2	45	0	0	0	0	0	0	0	0	1	0	117	383
1:15 PM	0	52	3	0	1	25	0	0	0	0	0	0	0	0	3	0	84	382
1:30 PM	0	28	0	0	2	45	0	0	0	0	0	0	1	0	1	0	77	373
1:45 PM	0	35	9	0	1	25	0	0	0	0	0	0	0	0	3	0	73	351
2:00 PM	0	35	7	0	2	37	0	0	0	0	0	0	0	0	3	0	84	318
2:15 PM	0	49	8	0	3	29	0	0	0	0	0	0	0	0	0	0	89	323
2:30 PM	0	53	14	0	0	30	0	0	0	0	0	0	0	0	3	0	100	346
2:45 PM	0	36	7	0	2	35	0	0	0	0	0	0	3	0	2	0	85	358
3:00 PM	0	58	8	0	1	38	0	0	0	0	0	0	3	0	5	0	113	387
3:15 PM	0	51	11	0	0	40	0	0	0	0	0	0	0	0	1	0	103	401
3:30 PM	0	71	17	0	1	34	0	0	0	0	0	0	0	0	1	0	124	425
3:45 PM	0	42	4	0	0	40	0	0	0	0	0	0	1	0	5	0	92	432
4:00 PM	0	48	2	0	0	33	0	0	0	0	0	0	0	0	2	0	85	404
4:15 PM	0	41	4	0	1	43	0	0	0	0	0	0	0	0	9	0	98	399
4:30 PM	0	46	1	0	1	43	0	0	0	0	0	0	0	0	3	0	94	369
4:45 PM	0	40	2	0	0	44	0	0	0	0	0	0	1	0	4	0	91	368

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	284	68	0	4	136	0	0	0	0	0	0	0	0	4	0	496
Heavy Trucks	0	4	68		0	0	0		0	0	0		0	0	0		72
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:14 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

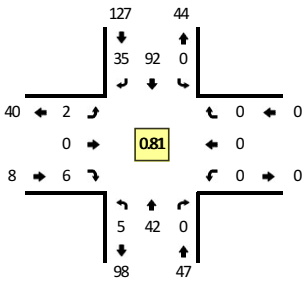
Type of peak hour being reported: User-Defined

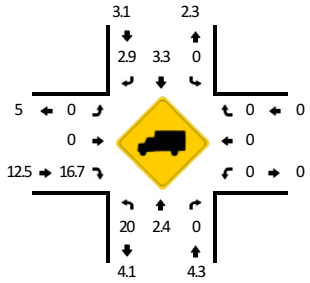
Method for determining peak hour: Total Entering Volume

LOCATION: 19.Makena Alanui Dr/Makena Rd -- Makena Keonoio Rd
CITY/STATE: Makena, HI

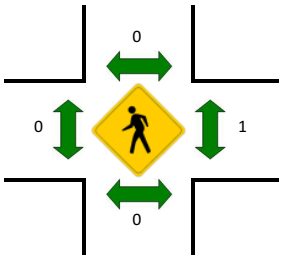
QC JOB #: 16267437
DATE: Thu, May 9 2024

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:15 AM -- 8:30 AM

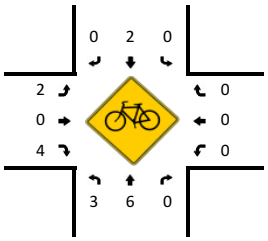


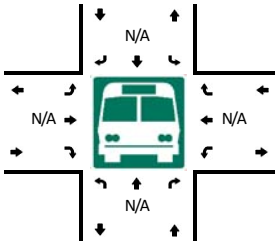


TRUE DATA TO IMPROVE MOBILITY

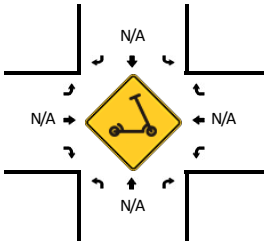












15-Min Count Period Beginning At	19.Makena Alanui Dr/Makena Rd (Northbound)				19.Makena Alanui Dr/Makena Rd (Southbound)				Makena Keonoio Rd (Eastbound)				Makena Keonoio Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	1	0	0	0	9	3	0	0	0	0	0	0	0	0	0	13	
6:15 AM	1	4	0	0	0	10	10	0	2	0	0	0	0	0	0	0	27	
6:30 AM	0	4	0	0	0	11	2	0	0	0	3	0	0	0	0	0	20	
6:45 AM	1	5	0	0	0	23	6	0	0	0	1	0	0	0	0	0	36	96
7:00 AM	3	12	0	0	0	19	7	0	1	0	1	0	0	0	0	0	43	126
7:15 AM	3	9	0	0	0	14	8	0	0	0	1	0	0	0	0	0	35	134
7:30 AM	0	8	0	0	0	21	7	0	0	0	0	0	0	0	0	0	36	150
7:45 AM	1	12	0	0	0	23	7	0	1	0	1	0	0	0	0	0	45	159
8:00 AM	2	8	0	0	0	21	10	0	1	0	3	0	0	0	0	0	45	161
8:15 AM	2	14	0	0	0	27	11	0	0	0	2	0	0	0	0	0	56	182
8:30 AM	1	8	0	0	0	17	10	0	6	0	2	0	0	0	0	0	44	190
8:45 AM	1	14	0	0	0	34	8	0	2	0	2	0	0	0	0	0	61	206

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	56	0	0	0	108	44	0	0	0	8	0	0	0	0	0	224
Heavy Trucks	4	0	0		0	4	0		0	0	0		0	0	0		8
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:14 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

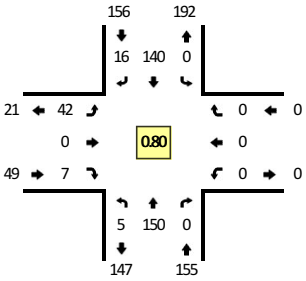
Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

LOCATION: 19.Makena Alanui Dr/Makena Rd -- Makena Keonoio Rd
CITY/STATE: Makena, HI

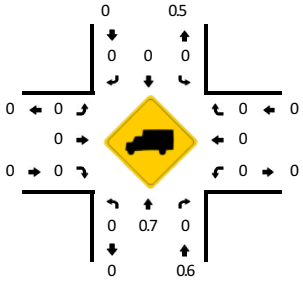
QC JOB #: 16267438
DATE: Thu, May 9 2024

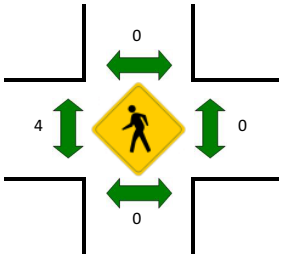
Peak-Hour: 3:30 PM -- 4:30 PM
Peak 15-Min: 3:30 PM -- 3:45 PM



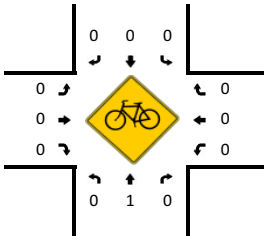


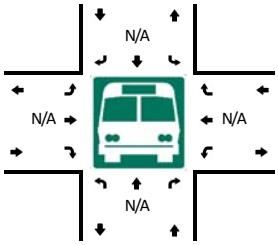
TRUE DATA TO IMPROVE MOBILITY



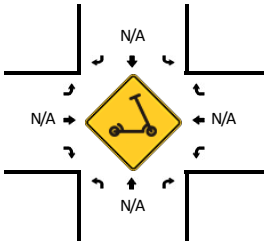












15-Min Count Period Beginning At	19.Makena Alanui Dr/Makena Rd (Northbound)				19.Makena Alanui Dr/Makena Rd (Southbound)				Makena Keonoio Rd (Eastbound)				Makena Keonoio Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	7	30	0	0	0	32	11	0	18	0	7	0	0	0	0	0	105	
12:15 PM	2	35	0	0	0	21	12	0	9	0	2	0	0	0	0	0	81	
12:30 PM	3	24	0	0	0	29	13	0	6	0	3	0	0	0	0	0	78	
12:45 PM	1	32	0	0	0	36	10	0	7	0	2	0	0	0	0	0	88	352
1:00 PM	0	33	0	0	0	37	12	0	9	0	6	0	0	0	0	0	97	344
1:15 PM	0	36	0	0	0	19	7	0	13	0	4	0	0	0	0	0	79	342
1:30 PM	1	24	0	0	0	31	10	0	8	0	5	0	0	0	0	0	79	343
1:45 PM	1	26	0	0	0	27	5	0	9	0	2	0	0	0	0	0	70	325
2:00 PM	0	28	0	0	0	27	7	0	3	0	3	0	0	0	0	0	68	296
2:15 PM	2	42	0	0	0	27	3	0	9	0	2	0	0	0	0	0	85	302
2:30 PM	1	30	0	0	0	27	4	0	19	0	2	0	0	0	0	0	83	306
2:45 PM	0	35	0	0	0	33	3	0	4	0	3	0	0	0	0	0	78	314
3:00 PM	0	34	0	0	0	32	7	0	15	0	0	0	0	0	0	0	88	334
3:15 PM	2	42	0	0	0	39	8	0	11	0	9	0	0	0	0	0	111	360
3:30 PM	1	60	0	0	0	34	4	0	12	0	2	0	0	0	0	0	113	390
3:45 PM	1	31	0	0	0	39	2	0	4	0	0	0	0	0	0	0	77	389
4:00 PM	1	28	0	0	0	34	4	0	19	0	1	0	0	0	0	0	87	388
4:15 PM	2	31	0	0	0	33	6	0	7	0	4	0	0	0	0	0	83	360
4:30 PM	0	34	0	0	0	38	10	0	14	0	0	0	0	0	0	0	96	343
4:45 PM	3	38	0	0	0	35	6	0	3	0	2	0	0	0	0	0	87	353

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	240	0	0	0	136	16	0	48	0	8	0	0	0	0	0	452
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/15/2024 6:14 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

WAILUKU LOOP ROUTE #1

Queen Ka'ahumanu Center	Maui Memorial Medical Center	Maui Lani Parkway/Kaiser	Wells St./State and County Buildings	Ka Hale A Ke Ola	High St./State and County Buildings	Malama I Ke Ola Health Center	Imi Kala St./Wailuku Post Office	N. Market St./Pi'ihana Terrace	Maka'ala Dr./ Hale Mahaolu	Waiehu Beach Rd./ Kuhio Pl.	Eha St./Sack N Save	Velma McWayne Santos Community Center	Kanaloa Ave./ Little League Field	Queen Ka'ahumanu Center
6:30	6:36	6:38	6:42	6:47	6:52	6:54	6:57	7:02	7:08	7:09	7:11	7:13	7:18	7:30
7:30	7:36	7:38	7:42	7:47	7:52	7:54	7:57	8:02	8:08	8:09	8:11	8:13	8:18	8:30
8:30	8:36	8:38	8:42	8:47	8:52	8:54	8:57	9:02	9:08	9:09	9:11	9:13	9:18	9:30
9:30	9:36	9:38	9:42	9:47	9:52	9:54	9:57	10:02	10:08	10:09	10:11	10:13	10:18	10:30
10:30	10:36	10:38	10:42	10:47	10:52	10:54	10:57	11:02	11:08	11:09	11:11	11:13	11:18	11:30
11:30	11:36	11:38	11:42	11:47	11:52	11:54	11:57	**12:02**	**12:08**	**12:09**	**12:11**	**12:13**	**12:18**	**12:30**
12:30	**12:36**	**12:38**	**12:42**	**12:47**	**12:52**	**12:54**	**12:57**	**1:02**	**1:08**	**1:09**	**1:11**	**1:13**	**1:18**	**1:30**
1:30	**1:36**	**1:38**	**1:42**	**1:47**	**1:52**	**1:54**	**1:57**	**2:02**	**2:08**	**2:09**	**2:11**	**2:13**	**2:18**	**2:30**
2:30	**2:36**	**2:38**	**2:42**	**2:47**	**2:52**	**2:54**	**2:57**	**3:02**	**3:08**	**3:09**	**3:11**	**3:13**	**3:18**	**3:30**
3:30	**3:36**	**3:38**	**3:42**	**3:47**	**3:52**	**3:54**	**3:57**	**4:02**	**4:08**	**4:09**	**4:11**	**4:13**	**4:18**	**4:30**
4:30	**4:36**	**4:38**	**4:42**	**4:47**	**4:52**	**4:54**	**4:57**	**5:02**	**5:08**	**5:09**	**5:11**	**5:13**	**5:18**	**5:30**
5:30	**5:36**	**5:38**	**5:42**	**5:47**	**5:52**	**5:54**	**5:57**	**6:02**	**6:08**	**6:09**	**6:11**	**6:13**	**6:18**	**6:30**
6:30	**6:36**	**6:38**	**6:42**	**6:47**	**6:52**	**6:54**	**6:57**	**7:02**	**7:08**	**7:09**	**7:11**	**7:13**	**7:18**	**7:30**
7:30	**7:36**	**7:38**	**7:42**	**7:47**	**7:52**	**7:54**	**7:57**	**8:02**	**8:08**	**8:09**	**8:11**	**8:13**	**8:18**	**8:30**
8:30	**8:36**	**8:38**	**8:42**	**8:47**	**8:52**	**8:54**	**8:57**	**9:02**	**9:08**	**9:09**	**9:11**	**9:13**	**9:18**	**9:30**

KAHULUI LOOP ROUTE #5

Queen Ka'ahumanu Center	Wahinepio Ave./MACC	S. Papa Ave./ Roselani Place	Onehe'e Ave./ S. Papa Ave.	Hale Mahaolu	Kamehameha Ave./ Moloka'i Akau St.	Luana Gardens	W. Papa Ave./La'au St.	Pakaula St./Wal-Mart	Dairy Rd./ Maui Marketplace	Dairy Rd./Kele St.	Kamehameha Ave./ Maui Mall	Kamehameha Ave./ Kahului Shopping Ctr.	Queen Ka'ahumanu Center
6:30	6:38	6:41	6:44	6:47	6:49	6:51	6:53	7:00	7:03	7:06	7:12	7:14	7:30
7:30	7:38	7:41	7:44	7:47	7:49	7:51	7:53	8:00	8:03	8:06	8:12	8:14	8:30
8:30	8:38	8:41	8:44	8:47	8:49	8:51	8:53	9:00	9:03	9:06	9:12	9:14	9:30
9:30	9:38	9:41	9:44	9:47	9:49	9:51	9:53	10:00	10:03	10:06	10:12	10:14	10:30
10:30	10:38	10:41	10:44	10:47	10:49	10:51	10:53	11:00	11:03	11:06	11:12	11:14	11:30
11:30	11:38	11:41	11:44	11:47	11:49	11:51	11:53	**12:00**	**12:03**	**12:06**	**12:12**	**12:14**	**12:30**
12:30	**12:38**	**12:41**	**12:44**	**12:47**	**12:49**	**12:51**	**12:53**	**1:00**	**1:03**	**1:06**	**1:12**	**1:14**	**1:30**
1:30	**1:38**	**1:41**	**1:44**	**1:47**	**1:49**	**1:51**	**1:53**	**2:00**	**2:03**	**2:06**	**2:12**	**2:14**	**2:30**
2:30	**2:38**	**2:41**	**2:44**	**2:47**	**2:49**	**2:51**	**2:53**	**3:00**	**3:03**	**3:06**	**3:12**	**3:14**	**3:30**
3:30	**3:38**	**3:41**	**3:44**	**3:47**	**3:49**	**3:51**	**3:53**	**4:00**	**4:03**	**4:06**	**4:12**	**4:14**	**4:30**
4:30	**4:38**	**4:41**	**4:44**	**4:47**	**4:49**	**4:51**	**4:53**	**5:00**	**5:03**	**5:06**	**5:12**	**5:14**	**5:30**
5:30	**5:38**	**5:41**	**5:44**	**5:47**	**5:49**	**5:51**	**5:53**	**6:00**	**6:03**	**6:06**	**6:12**	**6:14**	**6:30**
6:30	**6:38**	**6:41**	**6:44**	**6:47**	**6:49**	**6:51**	**6:53**	**7:00**	**7:03**	**7:06**	**7:12**	**7:14**	**7:30**
7:30	**7:38**	**7:41**	**7:44**	**7:47**	**7:49**	**7:51**	**7:53**	**8:00**	**8:03**	**8:06**	**8:12**	**8:14**	**8:30**
8:30	**8:38**	**8:41**	**8:44**	**8:47**	**8:49**	**8:51**	**8:53**	**9:00**	**9:03**	**9:06**	**9:12**	**9:14**	**9:30**

maui bus



WAILUKU LOOP ROUTE #2 (reverse)

Queen Ka'ahumanu Center	Kanaloa Ave./Little League Field (across)	Waena St./L. Main St.	Eha St./Ho'okahi St.	Waiehu Beach Rd./ Ka'ae Rd.	Maka'ala Dr./ Hale Mahaolu (across)	N. Market St./Pi'ihana Terrace (across)	Imi Kala St./ Wailuku Post Office	Malama I Ke Ola Health Center	Wells St./State and County Buildings	Ka Hale A Ke Ola	High St./State and County Buildings	Maui Lani Parkway/ Safeway	Maui Memorial Medical Ctr (across)	Queen Ka'ahumanu Center
7:00	7:05	7:12	7:14	7:16	7:17	7:22	7:25	7:29	7:32	7:37	7:42	7:45	7:46	8:00
8:00	8:05	8:12	8:14	8:16	8:17	8:22	8:25	8:29	8:32	8:37	8:42	8:45	8:46	9:00
9:00	9:05	9:12	9:14	9:16	9:17	9:22	9:25	9:29	9:32	9:37	9:42	9:45	9:46	10:00
10:00	10:05	10:12	10:14	10:16	10:17	10:22	10:25	10:29	10:32	10:37	10:42	10:45	10:46	11:00
11:00	11:05	11:12	11:14	11:16	11:17	11:22	11:25	11:29	11:32	11:37	11:42	11:45	11:46	**12:00**
12:00	**12:05**	**12:12**	**12:14**	**12:16**	**12:17**	**12:22**	**12:25**	**12:29**	**12:32**	**12:37**	**12:42**	**12:45**	**12:46**	**1:00**
1:00	**1:05**	**1:12**	**1:14**	**1:16**	**1:17**	**1:22**	**1:25**	**1:29**	**1:32**	**1:37**	**1:42**	**1:45**	**1:46**	**2:00**
2:00	**2:05**	**2:12**	**2:14**	**2:16**	**2:17**	**2:22**	**2:25**	**2:29**	**2:32**	**2:37**	**2:42**	**2:45**	**2:46**	**3:00**
3:00	**3:05**	**3:12**	**3:14**	**3:16**	**3:17**	**3:22**	**3:25**	**3:29**	**3:32**	**3:37**	**3:42**	**3:45**	**3:46**	**4:00**
4:00	**4:05**	**4:12**	**4:14**	**4:16**	**4:17**	**4:22**	**4:25**	**4:29**	**4:32**	**4:37**	**4:42**	**4:45**	**4:46**	**5:00**
5:00	**5:05**	**5:12**	**5:14**	**5:16**	**5:17**	**5:22**	**5:25**	**5:29**	**5:32**	**5:37**	**5:42**	**5:45**	**5:46**	**6:00**
6:00	**6:05**	**6:12**	**6:14**	**6:16**	**6:17**	**6:22**	**6:25**	**6:29**	**6:32**	**6:37**	**6:42**	**6:45**	**6:46**	**7:00**
7:00	**7:05**	**7:12**	**7:14**	**7:16**	**7:17**	**7:22**	**7:25**	**7:29**	**7:32**	**7:37**	**7:42**	**7:45**	**7:46**	**8:00**
8:00	**8:05**	**8:12**	**8:14**	**8:16**	**8:17**	**8:22**	**8:25**	**8:29**	**8:32**	**8:37**	**8:42**	**8:45**	**8:46**	**9:00**
9:00	**9:05**	**9:12**	**9:14**	**9:16**	**9:17**	**9:22**	**9:25**	**9:29**	**9:32**	**9:37**	**9:42**	**9:45**	**9:46**	**10:00**

KAHULUI LOOP ROUTE #6 (reverse)

Queen Ka'ahumanu Center	Kamehameha Ave./ Kahului Salvation Army	Kamehameha Ave./ Ho'ohana St.	Dairy Road/Kele St.	Dairy Rd./Maui Marketplace (across)	Pakaula St./ Home Depot	W. Papa Ave./ La'au St.	Luana Gardens (across)	Kamehameha Ave./ Moloka'i Akau St.	Hale Mahaolu	Onehe'e Ave./ S. Papa Ave.	S.Papa Ave./ Roselani Place(across)	Wahinepio Ave./ UH Maui College	Queen Ka'ahumanu Center
7:00	7:06	7:07	7:12	7:17	7:20	7:27	7:29	7:30	7:32	7:35	7:38	7:41	8:00
8:00	8:06	8:07	8:12	8:17	8:20	8:27	8:29	8:30	8:32	8:35	8:38	8:41	9:00
9:00	9:06	9:07	9:12	9:17	9:20	9:27	9:29	9:30	9:32	9:35	9:38	9:41	10:00
10:00	10:06	10:07	10:12	10:17	10:20	10:27	10:29	10:30	10:32	10:35	10:38	10:41	11:00
11:00	11:06	11:07	11:12	11:17	11:20	11:27	11:29	11:30	11:32	11:35	11:38	11:41	**12:00**
12:00	**12:06**	**12:07**	**12:12**	**12:17**	**12:20**	**12:27**	**12:29**	**12:30**	**12:32**	**12:35**	**12:38**	**12:41**	**1:00**
1:00	**1:06**	**1:07**	**1:12**	**1:17**	**1:20**	**1:27**	**1:29**	**1:30**	**1:32**	**1:35**	**1:38**	**1:41**	**2:00**
2:00	**2:06**	**2:07**	**2:12**	**2:17**	**2:20**	**2:27**	**2:29**	**2:30**	**2:32**	**2:35**	**2:38**	**2:41**	**3:00**
3:00	**3:06**	**3:07**	**3:12**	**3:17**	**3:20**	**3:27**	**3:29**	**3:30**	**3:32**	**3:35**	**3:38**	**3:41**	**4:00**
4:00	**4:06**	**4:07**	**4:12**	**4:17**	**4:20**	**4:27**	**4:29**	**4:30**	**4:32**	**4:35**	**4:38**	**4:41**	**5:00**
5:00	**5:06**	**5:07**	**5:12**	**5:17**	**5:20**	**5:27**	**5:29**	**5:30**	**5:32**	**5:35**	**5:38**	**5:41**	**6:00**
6:00	**6:06**	**6:07**	**6:12**	**6:17**	**6:20**	**6:27**	**6:29**	**6:30**	**6:32**	**6:35**	**6:38**	**6:41**	**7:00**
7:00	**7:06**	**7:07**	**7:12**	**7:17**	**7:20**	**7:27**	**7:29**	**7:30**	**7:32**	**7:35**	**7:38**	**7:41**	**8:00**
8:00	**8:06**	**8:07**	**8:12**	**8:17**	**8:20**	**8:27**	**8:29**	**8:30**	**8:32**	**8:35**	**8:38**	**8:41**	**9:00**
9:00	**9:06**	**9:07**	**9:12**	**9:17**	**9:20**	**9:27**	**9:29**	**9:30**	**9:32**	**9:35**	**9:38**	**9:41**	**10:00**





HAIKU ISLANDER ROUTE #35

Queen Ka'ahumanu Center	Kamehameha Ave./ Kahului Salvation Army	Kamehameha Ave./ Ho'ohana St.	Kahului Airport Pick-Up Zone #3	Paia Town/Public Parking (to Haiku)	Haiku Marketplace	Pauwela Rd./Hana Hwy.	Paia Town/Public Parking (to Kahului)	Kahului Airport Pick-Up Zone #3	Kamehameha Ave. / Maui Mall	Kamehameha Ave. / Kahului Shopping Ctr	Queen Ka'ahumanu Center
5:30	5:33	5:34	5:40	5:53	6:11	6:17	6:29	6:40	6:47	6:48	7:00
7:00	7:03	7:04	7:10	7:23	7:41	7:47	7:59	8:10	8:17	8:18	8:30
8:30	8:33	8:34	8:40	8:53	9:11	9:17	9:29	9:40	9:47	9:48	10:00
10:00	10:03	10:04	10:10	10:23	10:41	10:47	10:59	11:10	11:17	11:18	11:30
11:30	11:33	11:34	11:40	11:53	**12:11**	**12:17**	**12:29**	**12:40**	**12:47**	**12:48**	**1:00**
1:00	**1:03**	**1:04**	**1:10**	**1:23**	**1:41**	**1:47**	**1:59**	**2:10**	**2:17**	**2:18**	**2:30**
2:30	**2:33**	**2:34**	**2:40**	**2:53**	**3:11**	**3:17**	**3:29**	**3:40**	**3:47**	**3:48**	**4:00**
4:00	**4:03**	**4:04**	**4:10**	**4:23**	**4:41**	**4:47**	**4:59**	**5:10**	**5:17**	**5:18**	**5:30**
5:30	**5:33**	**5:34**	**5:40**	**5:53**	**6:11**	**6:17**	**6:29**	**6:40**	**6:47**	**6:48**	**7:00**
7:00	**7:03**	**7:04**	**7:10**	**7:23**	**7:41**	**7:47**	**7:59**	**8:10**	**8:17**	**8:18**	**8:30**
8:30	**8:33**	**8:34**	**8:40**	**8:53**	**9:11**	**9:17**	**9:29**	**9:40**	**9:47**	**9:48**	**10:00**

UPCOUNTRY ISLANDER ROUTE #40

Queen Ka'ahumanu Center	Kamehameha Ave./ Kahului Salvation Army	Kamehameha Ave./ Ho'ohana St.	Kahului Airport Pick-Up Zone #3	Mayor Hannibal Tavares Community Ctr.	Kulamalu Town Ctr. (to Maka'wao)	Makawao Public Library	Hali'imaile Park and Tennis	Kahului Airport Pick-Up Zone #3	Kamehameha Ave / Maui Mall	Kamehameha Ave / Kahului Shopping Center	Queen Ka'ahumanu Center
6:00	6:03	6:04	6:10	6:30	6:38	6:48	6:53	7:11	7:17	7:18	7:30
7:30	7:33	7:34	7:40	8:00	8:08	8:18	8:23	8:41	8:47	8:48	9:00
9:00	9:03	9:04	9:10	9:30	9:38	9:48	9:53	10:11	10:17	10:18	10:30
10:30	10:33	10:34	10:40	11:00	11:08	11:18	11:23	11:41	11:47	11:48	**12:00**
12:00	**12:03**	**12:04**	**12:10**	**12:30**	**12:38**	**12:48**	**12:53**	**1:11**	**1:17**	**1:18**	**1:30**
1:30	**1:33**	**1:34**	**1:40**	**2:00**	**2:08**	**2:18**	**2:23**	**2:41**	**2:47**	**2:48**	**3:00**
3:00	**3:03**	**3:04**	**3:10**	**3:30**	**3:38**	**3:48**	**3:53**	**4:11**	**4:17**	**4:18**	**4:30**
4:30	**4:33**	**4:34**	**4:40**	**5:00**	**5:08**	**5:18**	**5:23**	**5:41**	**5:47**	**5:48**	**6:00**
6:00	**6:03**	**6:04**	**6:10**	**6:30**	**6:38**	**6:48**	**6:53**	**7:11**	**7:17**	**7:18**	**7:30**
7:30	**7:33**	**7:34**	**7:40**	**8:00**	**8:08**	**8:18**	**8:23**	**8:41**	**8:47**	**8:48**	**9:00**
9:00	**9:03**	**9:04**	**9:10**	**9:30**	**9:38**	**9:48**	**9:53**	**10:11**	**10:17**	**10:18**	**10:30**

KA'ANAPALI ISLANDER RT #25

Wharf Cinema Center	Papalaua St./ Front St.	Lahaina Cannery Mall	Whalers Village	Lahaina Cannery Mall	Papalaua St./ Front St.	Wharf Cinema Center
			2:30	2:40	2:50	3:00
3:00	3:13	3:20	3:30	3:40	3:50	4:00
4:00	4:13	4:20	4:30	4:40	4:50	5:00
5:00	5:13	5:20	5:30			

KIHEI ISLANDER ROUTE #10

Queen Ka'ahumanu Center	Kamehameha Ave./ Kahului Salvation Army	S. Kihei Rd./Uwapo Rd. (southbound)	S. Kihei Rd./Kulanihakoi St. (southbound)	Pi'ilani Village Shopping Center	S. Kihei Rd./Keala Pl. (southbound)	Kamaole Beach III (southbound)	Wailea Ike Drive	Kamaole Beach III (northbound)	S. Kihei Rd./ Keala Pl. (northbound)	Pi'ilani Village Shopping Center	S. Kihei Rd./ Kulanihakoi St. (northbound)	S. Kihei Rd./ Uwapo Rd. (northbound)	Kamehameha Ave./ Kahului Shopping Ctr	Queen Ka'ahumanu Center
5:30	5:35	5:50	5:55	6:03	6:12	6:20	6:27	6:34	6:42	6:50	6:57	7:02	7:18	7:30
6:30	6:35	6:50	6:55	7:03	7:12	7:20	7:27	7:34	7:42	7:50	7:57	8:02	8:18	8:30
7:30	7:35	7:50	7:55	8:03	8:12	8:20	8:27	8:34	8:42	8:50	8:57	9:02	9:18	9:30
8:30	8:35	8:50	8:55	9:03	9:12	9:20	9:27	9:34	9:42	9:50	9:57	10:02	10:18	10:30
9:30	9:35	9:50	9:55	10:03	10:12	10:20	10:27	10:34	10:42	10:50	10:57	11:02	11:18	11:30
10:30	10:35	10:50	10:55	11:03	11:12	11:20	11:27	11:34	11:42	11:50	11:57	**12:02**	**12:18**	**12:30**
11:30	11:35	11:50	11:55	**12:03**	**12:12**	**12:20**	**12:27**	**12:34**	**12:42**	**12:50**	**12:57**	**1:02**	**1:18**	**1:30**
12:30	**12:35**	**12:50**	**12:55**	**1:03**	**1:12**	**1:20**	**1:27**	**1:34**	**1:42**	**1:50**	**1:57**	**2:02**	**2:18**	**2:30**
1:30	**1:35**	**1:50**	**1:55**	**2:03**	**2:12**	**2:20**	**2:27**	**2:34**	**2:42**	**2:50**	**2:57**	**3:02**	**3:18**	**3:30**
2:30	**2:35**	**2:50**	**2:55**	**3:03**	**3:12**	**3:20**	**3:27**	**3:34**	**3:42**	**3:50**	**3:57**	**4:02**	**4:18**	**4:30**
3:30	**3:35**	**3:50**	**3:55**	**4:03**	**4:12**	**4:20**	**4:27**	**4:34**	**4:42**	**4:50**	**4:57**	**5:02**	**5:18**	**5:30**
4:30	**4:35**	**4:50**	**4:55**	**5:03**	**5:12**	**5:20**	**5:27**	**5:34**	**5:42**	**5:50**	**5:57**	**6:02**	**6:18**	**6:30**
5:30	**5:35**	**5:50**	**5:55**	**6:03**	**6:12**	**6:20**	**6:27**	**6:34**	**6:42**	**6:50**	**6:57**	**7:02**	**7:18**	**7:30**
6:30	**6:35**	**6:50**	**6:55**	**7:03**	**7:12**	**7:20**	**7:27**	**7:34**	**7:42**	**7:50**	**7:57**	**8:02**	**8:18**	**8:30**
7:30	**7:35**	**7:50**	**7:55**	**8:03**	**8:12**	**8:20**	**8:27**	**8:34**	**8:42**	**8:50**	**8:57**	**9:02**	**9:18**	**9:30**

KIHEI VILLAGER ROUTE #15

Ma'alaea Harbor Village	S. Kihei Rd./ Uwapo Rd. (southbound)	S. Kihei Rd./Ohukai Rd. (southbound)	S. Kihei Rd./Kaonoulu St. (southbound)	S. Kihei Rd./Kulanihakoi St. (southbound)	S. Kihei Rd./Waipuilani Rd. (southbound)	Pi'ikea Ave./ S. Kihei Rd.	Pi'ilani Village Shopping Center	Pi'ikea Ave./ S. Kihei Rd.	S. Kihei Rd./Waipuilani Rd. (northbound)	S. Kihei Rd./Kulanihakoi St. (northbound)	S. Kihei Rd./Kaonoulu St. (northbound)	S. Kihei Rd./Ohukai Rd. (northbound)	S. Kihei Rd./Uwapo Rd. (northbound)	Ma'alaea Harbor Village
							5:26	5:29	5:31	5:32	5:33	5:35	5:37	5:55
6:00	6:13	6:15	6:16	6:17	6:19	6:21	6:26	6:29	6:31	6:32	6:33	6:35	6:37	6:55
7:00	7:13	7:15	7:16	7:17	7:19	7:21	7:26	7:29	7:31	7:32	7:33	7:35	7:37	7:55
8:00	8:13	8:15	8:16	8:17	8:19	8:21	8:26	8:29	8:31	8:32	8:33	8:35	8:37	8:55
9:00	9:13	9:15	9:16	9:17	9:19	9:21	9:26	9:29	9:31	9:32	9:33	9:35	9:37	9:55
10:00	10:13	10:15	10:16	10:17	10:19	10:21	10:26	10:29	10:31	10:32	10:33	10:35	10:37	10:55
11:00	11:13	11:15	11:16	11:17	11:19	11:21	11:26	11:29	11:31	11:32	11:33	11:35	11:37	11:55
12:00	**12:13**	**12:15**	**12:16**	**12:17**	**12:19**	**12:21**	**12:26**	**12:29**	**12:31**	**12:32**	**12:33**	**12:35**	**12:37**	**12:55**
1:00	**1:13**	**1:15**	**1:16**	**1:17**	**1:19**	**1:21**	**1:26**	**1:29**	**1:31**	**1:32**	**1:33**	**1:35**	**1:37**	**1:55**
2:00	**2:13**	**2:15**	**2:16**	**2:17**	**2:19**	**2:21**	**2:26**	**2:29**	**2:31**	**2:32**	**2:33**	**2:35**	**2:37**	**2:55**
3:00	**3:13**	**3:15**	**3:16**	**3:17**	**3:19**	**3:21**	**3:26**	**3:29**	**3:31**	**3:32**	**3:33**	**3:35**	**3:37**	**3:55**
4:00	**4:13**	**4:15**	**4:16**	**4:17**	**4:19**	**4:21**	**4:26**	**4:29**	**4:31**	**4:32**	**4:33**	**4:35**	**4:37**	**4:55**
5:00	**5:13**	**5:15**	**5:16**	**5:17**	**5:19**	**5:21**	**5:26**	**5:29**	**5:31**	**5:32**	**5:33**	**5:35**	**5:37**	**5:55**
6:00	**6:13**	**6:15**	**6:16**	**6:17**	**6:19**	**6:21**	**6:26**	**6:29**	**6:31**	**6:32**	**6:33**	**6:35**	**6:37**	**6:55**
7:00	**7:13**	**7:15**	**7:16**	**7:17**	**7:19**	**7:21**	**7:26**	**7:29**	**7:31**	**7:32**	**7:33**	**7:35**	**7:37**	**7:55**
8:00	**8:13**	**8:15**	**8:16**	**8:17**	**8:19**	**8:21**	**8:26**	**8:29**	**8:31**	**8:32**	**8:33**	**8:35**	**8:37**	**8:55**

KULA ISLANDER ROUTE #39

Queen Ka'ahumanu Center	Kamehameha Ave./ Kahului Salvation Army	Pakaula St./ Home Depot	Mayor Hannibal Tavares Community Ctr	Kulamalu Town Center (to Kula)	Kula Hardware (to Kula)	Kula Community Center (to Kula)	Harold W. Rice Memorial Park (to Kula)	Pueo Dr./Kula Hwy.	Pueo Dr./Hi'ipali Lp.	Kula Hwy./Kula Hospital	Harold W. Rice Memorial Park (to Pukalani)	Kula Community Center (to Pukalani)	Kula Hardware (to Pukalani)	Kulamalu Town Center (to Pukalani)	Mayor Hannibal Tavares Community Ctr	Pakaula St./Wal-Mart	Kamehameha Ave./ Kahului Shopping Ctr	Queen Ka'ahumanu Center
								5:56	5:59	6:11	6:16	6:21	6:23	6:31	6:38	6:58	7:03	7:10
8:00	8:05	8:11	8:28	8:36	8:44	8:48	8:53	8:56	8:59	9:11	9:16	9:21	9:23	9:31	9:38	9:58	10:03	10:10
11:00	11:05	11:11	11:28	11:36	11:44	11:48	11:53	11:56	11:59	**12:11**	**12:16**	**12:21**	**12:23**	**12:31**	**12:38**	**12:58**	**1:03**	**1:10**
2:00	**2:05**	**2:11**	**2:28**	**2:36**	**2:44**	**2:48**	**2:53**	**2:56**	**2:59**	**3:11**	**3:16**	**3:21**	**3:23**	**3:31**	**3:38**	**3:58**	**4:03**	**4:10**
5:00	**5:05**	**5:11**	**5:28**	**5:36**	**5:44**	**5:48**	**5:53**	**5:56**	**5:59**	**6:11**	**6:16**	**6:21**	**6:23**	**6:31**	**6:38**	**6:58**	**7:03**	**7:10**
8:00	**8:05**	**8:11**	**8:28**	**8:36**	**8:44**	**8:48**	**8:53**	**8:56**	**8:59**	**9:11**								

WAIHE'E VILLAGER ROUTE #8

Queen Ka'ahumanu Center	Kea St./Kaiemi St.	S. Papa Ave./ Roselani Place (across)	Wahinepio Ave./ UH Maui College	Ho'okahi St./ Eha St. (to Waihe'e)	Waiehu Beach Rd./ Ka'ae Rd.	Lower Waiehu Beach Rd./ Pakele Pl.	Akake St./ Lower Waiehu Beach Rd.	Hoauna St./ Oceanview Estates	Kahekili Hwy. - Bus Shelter	Kahekili Hwy./Waiehu Kou	Kahekili Hwy./ Ho'ola Hou St. (past)	Richard Pablo Caldito Sr. Park	Kahekili Hwy./ Hoauna St.	Wailupe Dr./ Waiehu Heights	Waiehu Beach Rd./ Kuhio Pl.	Ho'okahi St./ Eha St. (to Kahului)	Wahinepio Ave./MACC	S. Papa Ave/Roselani Place	Kea St./Hone St.	Queen Ka'ahumanu Center
7:15	7:18	7:20	7:23	7:27	7:29	7:31	7:33	7:35	7:36	7:37	7:38	7:39	7:42	7:45	7:46	7:48	7:51	7:53	7:55	8:00
10:15	10:18	10:20	10:23	10:27	10:29	10:31	10:33	10:35	10:36	10:37	10:38	10:39	10:42	10:45	10:46	10:48	10:51	10:53	10:55	11:00
1:15	**1:18**	**1:20**	**1:23**	**1:27**	**1:29**	**1:31**	**1:33**	**1:35**	**1:36**	**1:37**	**1:38**	**1:39**	**1:42**	**1:45**	**1:46**	**1:48**	**1:51**	**1:53**	**1:55**	**2:00**
4:15	**4:18**	**4:20**	**4:23**	**4:27**	**4:29**	**4:31**	**4:33**	**4:35**	**4:36**	**4:37**	**4:38**	**4:39**	**4:42**	**4:45**	**4:46**	**4:48**	**4:51**	**4:53**	**4:55**	**5:00**
7:15	**7:18**	**7:20**	**7:23**	**7:27**	**7:29**	**7:31**	**7:33**	**7:35**	**7:36**	**7:37**	**7:38**	**7:39**	**7:42**	**7:45**	**7:46**	**7:48**	**7:51**	**7:53**	**7:55**	**8:00**

WEST MAUI ISLANDER RT #28

Wharf Cinema Center	Papalaua St./Front St.	Lahaina Cannery Mall	Whalers Village	Honokowai Shopping Center (to Kapalua)	L. Honoapiilani Rd./ Polynesian Shores (to Kapalua)	L. Honoapiilani Rd./ Kahana Manor	Napili Plaza	L. Honoapiilani Rd./ Napili Shores (to Kapalua)	Kapalua Dr./Kapalua	L. Honoapiilani Rd./Napili Kai	L. Honoapiilani Rd./ Napili Shores (to Lahaina)	Napili Plaza	L. Honoapiilani Rd./ Kahana Sunset	L. Honoapiilani Rd./ Valley Isle Resort	L. Honoapiilani Rd./ Polynesian Shores (to Lahaina)	Honokowai Shopping Center (to Lahaina)	Whalers Village	Lahaina Cannery Mall	Papalaua St./Front St.	Wharf Cinema Center
									5:30	5:36	5:39	5:43	5:46	5:49	5:51	5:57	6:07	6:16	6:21	6:30
			5:58	6:06	6:11	6:13	6:20	6:23	6:30	6:36	6:39	6:43	6:46	6:49	6:51	6:57	7:07	7:16	7:21	7:30
6:30	6:39	6:46	6:58	7:06	7:11	7:13	7:20	7:23	7:30	7:36	7:39	7:43	7:46	7:49	7:51	7:57	8:07	8:16	8:21	8:30
7:30	7:39	7:46	7:58	8:06	8:11	8:13	8:20	8:23	8:30	8:36	8:39	8:43	8:46	8:49	8:51	8:57	9:07	9:16	9:21	9:30
8:30	8:39	8:46	8:58	9:06	9:11	9:13	9:20	9:23	9:30	9:36	9:39	9:43	9:46	9:49	9:51	9:57	10:07	10:16	10:21	10:30
9:30	9:39	9:46	9:58	10:06	10:11	10:13	10:20	10:23	10:30	10:36	10:39	10:43	10:46	10:49	10:51	10:57	11:07	11:16	11:21	11:30
10:30	10:39	10:46	10:58	11:06	11:11	11:13	11:20	11:23	11:30	11:36	11:39	11:43	11:46	11:49	11:51	11:57	**12:07**	**12:16**	**12:21**	**12:30**
11:30	11:39	11:46	11:58	**12:06**	**12:11**	**12:13**	**12:20**	**12:23**	**12:30**	**12:36**	**12:39**	**12:43**	**12:46**	**12:49**	**12:51**	**12:57**	**1:07**	**1:16**	**1:21**	**1:30**
12:30	**12:39**	**12:46**	**12:58**	**1:06**	**1:11**	**1:13**	**1:20**	**1:23**	**1:30**	**1:36**	**1:39**	**1:43**	**1:46**	**1:49**	**1:51**	**1:57**	**2:07**	**2:16**	**2:21**	**2:30**
1:30	**1:39**	**1:46**	**1:58**	**2:06**	**2:11**	**2:13**	**2:20**	**2:23**	**2:30**	**2:36**	**2:39**	**2:43**	**2:46**	**2:49**	**2:51**	**2:57**	**3:07**	**3:16**	**3:21**	**3:30**
2:30	**2:39**	**2:46**	**2:58**	**3:06**	**3:11**	**3:13**	**3:20**	**3:23**	**3:30**	**3:36**	**3:39**	**3:43**	**3:46**	**3:49**	**3:51**	**3:57**	**4:07**	**4:16**	**4:21**	**4:30**
3:30	**3:39**	**3:46**	**3:58**	**4:06**	**4:11**	**4:13**	**4:20**	**4:23**	**4:30**	**4:36**	**4:39**	**4:43**	**4:46**	**4:49**	**4:51**	**4:57**	**5:07**	**5:16**	**5:21**	**5:30**
4:30	**4:39**	**4:46**	**4:58**	**5:06**	**5:11**	**5:13**	**5:20**	**5:23**	**5:30**	**5:36**	**5:39**	**5:43**	**5:46**	**5:49**	**5:51**	**5:57**	**6:07**	**6:16**	**6:21**	**6:30**
5:30	**5:39**	**5:46**	**5:58**	**6:06**	**6:11**	**6:13**	**6:20**	**6:23**	**6:30**	**6:36**	**6:39**	**6:43**	**6:46**	**6:49**	**6:51**	**6:57**	**7:07**	**7:16**	**7:21**	**7:30**
6:30	**6:39**	**6:46**	**6:58**	**7:06**	**7:11**	**7:13**	**7:20**	**7:23**	**7:30**	**7:36**	**7:39**	**7:43**	**7:46**	**7:49**	**7:51**	**7:57**	**8:07**	**8:16**	**8:21**	**8:30**
7:30	**7:39**	**7:46**	**7:58**	**8:06**	**8:11**	**8:13**	**8:20**	**8:23**	**8:30**	**8:36**	**8:39**	**8:43**	**8:46**	**8:49**	**8:51**	**8:57**	**9:07**	**9:16**	**9:21**	**9:30**
8:30	**8:39**	**8:46**	**8:58**																	

LAHAINA VILLAGER ROUTE #23

Wharf Cinema Center	505 Front St.	Lahaina Aquatics Center	Lahainaluna Rd./ Kuialua St.	Kelena St./ Pikanele St.	Lahaina Gateway	Ainakea Rd./ Fleming Rd.	Lealii Pkwy./ Ho'oil St.	Lahaina Cannery Mall	Papalaua St./ Front St.	Wharf Cinema Center
8:00	8:05	8:10	8:19	8:23	8:29	8:33	8:37	8:44	8:48	9:00
9:00	9:05	9:10	9:19	9:23	9:29	9:33	9:37	9:44	9:48	10:00
10:00	10:05	10:10	10:19	10:23	10:29	10:33	10:37	10:44	10:48	11:00
11:00	11:05	11:10	11:19	11:23	11:29	11:33	11:37	11:44	11:48	**12:00**
12:00	**12:05**	**12:10**	**12:19**	**12:23**	**12:29**	**12:33**	**12:37**	**12:44**	**12:48**	**1:00**
1:00	**1:05**	**1:10**	**1:19**	**1:23**	**1:29**	**1:33**	**1:37**	**1:44**	**1:48**	**2:00**
BREAK										
3:00	**3:05**	**3:10**	**3:19**	**3:23**	**3:29**	**3:33**	**3:37**	**3:44**	**3:48**	**4:00**
4:00	**4:05**	**4:10**	**4:19**	**4:23**	**4:29**	**4:33**	**4:37**	**4:44**	**4:48**	**5:00**
5:00	**5:05**	**5:10**	**5:19**	**5:23**	**5:29**	**5:33**	**5:37**	**5:44**	**5:48**	**6:00**
6:00	**6:05**	**6:10**	**6:19**	**6:23**	**6:29**	**6:33**	**6:37**	**6:44**	**6:48**	**7:00**
7:00	**7:05**	**7:10**	**7:19**	**7:23**	**7:29**	**7:33**	**7:37**	**7:44**	**7:48**	**8:00**
8:00	**8:05**	**8:10**	**8:19**	**8:23**	**8:29**	**8:33**	**8:37**	**8:44**	**8:48**	**9:00**
9:00	**9:05**	**9:10**	**9:19**	**9:23**	**9:29**	**9:33**	**9:37**	**9:44**	**9:48**	**10:00**
10:00	**10:05**	**10:10**	**10:19**	**10:23**	**10:29**	**10:33**	**10:37**	**10:44**	**10:48**	**11:00**

LAHAINA ISLANDER RT #20

Queen Ka'ahumanu Center	Wells St./State & County Buildings	Ma'alaea Harbor Village	Wharf Cinema Center	Ma'alaea Harbor Village	High St./State & County Buildings	Queen Ka'ahumanu Center
5:30	5:40	5:55	6:30	7:00	7:13	7:30
6:30	6:40	6:55	7:30	8:00	8:13	8:30
7:30	7:40	7:55	8:30	9:00	9:13	9:30
8:30	8:40	8:55	9:30	10:00	10:13	10:30
9:30	9:40	9:55	10:30	11:00	11:13	11:30
10:30	10:40	10:55	11:30	**12:00**	**12:13**	**12:30**
11:30	11:40	11:55	**12:30**	**1:00**	**1:13**	**1:30**
12:30	**12:40**	**12:55**	**1:30**	**2:00**	**2:13**	**2:30**
1:30	**1:40**	**1:55**	**2:30**	**3:00**	**3:13**	**3:30**
2:30	**2:40**	**2:55**	**3:30**	**4:00**	**4:13**	**4:30**
3:30	**3:40**	**3:55**	**4:30**	**5:00**	**5:13**	**5:30**
4:30	**4:40**	**4:55**	**5:30**	**6:00**	**6:13**	**6:30**
5:30	**5:40**	**5:55**	**6:30**	**7:00**	**7:13**	**7:30**
6:30	**6:40**	**6:55**	**7:30**	**8:00**	**8:13**	**8:30**
7:30	**7:40**	**7:55**	**8:30**	**9:00**	**9:13**	**9:30**

ALL ROUTES ARE **$2** PER BOARDING | All times in **BOLD** are **PM**

BUS RULES

For your safety and the safety of others:

- Please be at the bus stop at least five (5) minutes prior to the departure time. Wait on the proper side of the road for the bus to arrive at the bus stop sign. Wait for the bus to make a complete stop before approaching the bus.
- Please enter the bus with exact fare or have your pass visible.
- Infants under 2 years old, traveling free must ride on the lap of an accompanying adult.
- Please allow senior citizens the use of front seating.
- Please be alert at all times for sudden or quick stops.
- When standing, please move to the rear of the bus and always hold on to the standee handbars or seatbars.
- Please do not change your seats after the bus starts moving and please fasten your seatbelts.
- Shirt and footwear are required.
- Pets must be in an enclosed carrier or cage. Service animals are allowed on the bus.
- Anyone who believes that he or she has been discriminated against on the basis of race, color or national origin, while using the Maui Bus or its paratransit services may file a Title VI complaint with the County of Maui Department of Transportation.

BAGGAGE RULES

All baggage and personal items must be stored under a passenger's seat or on the passenger's lap, and will not protrude to another seat or interfere with other passengers. Baggage that will not be admitted on board shall include any oversized, dangerous or offensive article that may cause harm or discomfort to any passenger. All items must be free of sand and debris. No baggage may be stored in the aisle or on another seat.

- One (1) Medium-sized suitcase, dufflebag, backpack, carry-on bag, metal-framed child carriers, small metal caddy on wheels, collapsible baby stroller, band instrument, skateboard, soft body board without skegs, beach chair, pet carrier or cage, small cooler, or container with no sharp edges holding a maximum of three (3) golf clubs or detachable fishing poles is allowed.
- Grocery and reusable bags that a passenger can carry in their arms are allowed. Bags filled with bottle and can recyclables are not allowed.

BICYCLE RULES

- All buses are equipped with a bicycle rack that can hold a maximum of two (2) bicycles. Both tires must sit flat to the base of the rack.
- Only two-wheeled, non-motorized bicycles are permitted. No gas or electric powered bicycles are allowed.
- Bicycles with an oversized basket or other type of carrier that obstructs the view of the driver is not permitted.

PROHIBITED

- Surfboards and skimboards.
- Eating, drinking, smoking, e-cigarettes or loud music.
- Flammable, explosive or toxic material.
- Weapons and dangerous instruments.
- Littering on the bus.
- Obstructing or interfering with the bus driver.

FARES

Please deposit the exact fare or present your bus pass to the driver when boarding the bus. Daily and monthly bus passes are also available.

ONE-WAY FARE

General Fare - All Routes **$2.00**
Fixed Routes, Commuter, and ADA Paratransit Service

Reduced Fare – Fixed Routes Only **$1.00**
Seniors (55 Years & Older), Paratransit Eligible & Person with a Disability (with Pertinent Valid ID), and Medicare Card Holders

Infants **Free**
Infants under 2 years old, riding on the lap of an accompanying adult travel free

DAILY PASS $4.00

Fixed Routes and ADA Paratransit Service

MONTHLY PASS (PRIORITY BOARDING)

General Boarding **$45.00**
Fixed Routes and Commuter Service

Student Pass (With Valid ID, Ages 24 & Under) **$30.00**
Fixed Routes and ADA Paratransit Service

Senior Pass (55 Years & Older) **$25.00**
Fixed Routes Only

Person with Disability Pass* **$30.00**
Fixed Routes Only

**Applicants shall be required to register with Maui Economic Opportunity, Inc. (MEO) to qualify for this rate. Please contact MEO at (808) 249-2990 for application and information.*

Monthly Passes are valid for a calendar month and are available for purchase from the 25th of the previous month through the 10th of each month.

Monthly and daily passes are available from:

- Maui Bus Drivers
- Maui County Business Resource Center – Maui Mall
  Weekdays 8am–4:30pm, excluding holidays
- Wharf Cinema Center Management Office
  Weekdays 9am–4pm, excluding holidays

***Note:** Lost, stolen, destroyed or misplaced bus passes will not be replaced or refunded. Monthly and daily passes are non-transferable.*

CONTACT INFORMATION

mauicounty.gov/bus • mauibus.org
public.transit@mauicounty.gov
(808) 871-4838

BUS SCHEDULE

EFFECTIVE JULY 2019

All vehicles are ADA accessible and are equipped with two bicycle racks

maui bus



County of Maui
Department of Transportation
Operated by
Roberts Hawaii

GENERAL INFORMATION

The Maui Bus public transit service consists of 14 bus routes, all operated by Roberts Hawaii. These routes are funded by the County of Maui and provide service in and between various Central, South, West, Haiku, Kula, and U pcountry Maui communities. All of the routes are operated seven days a week, including holidays.

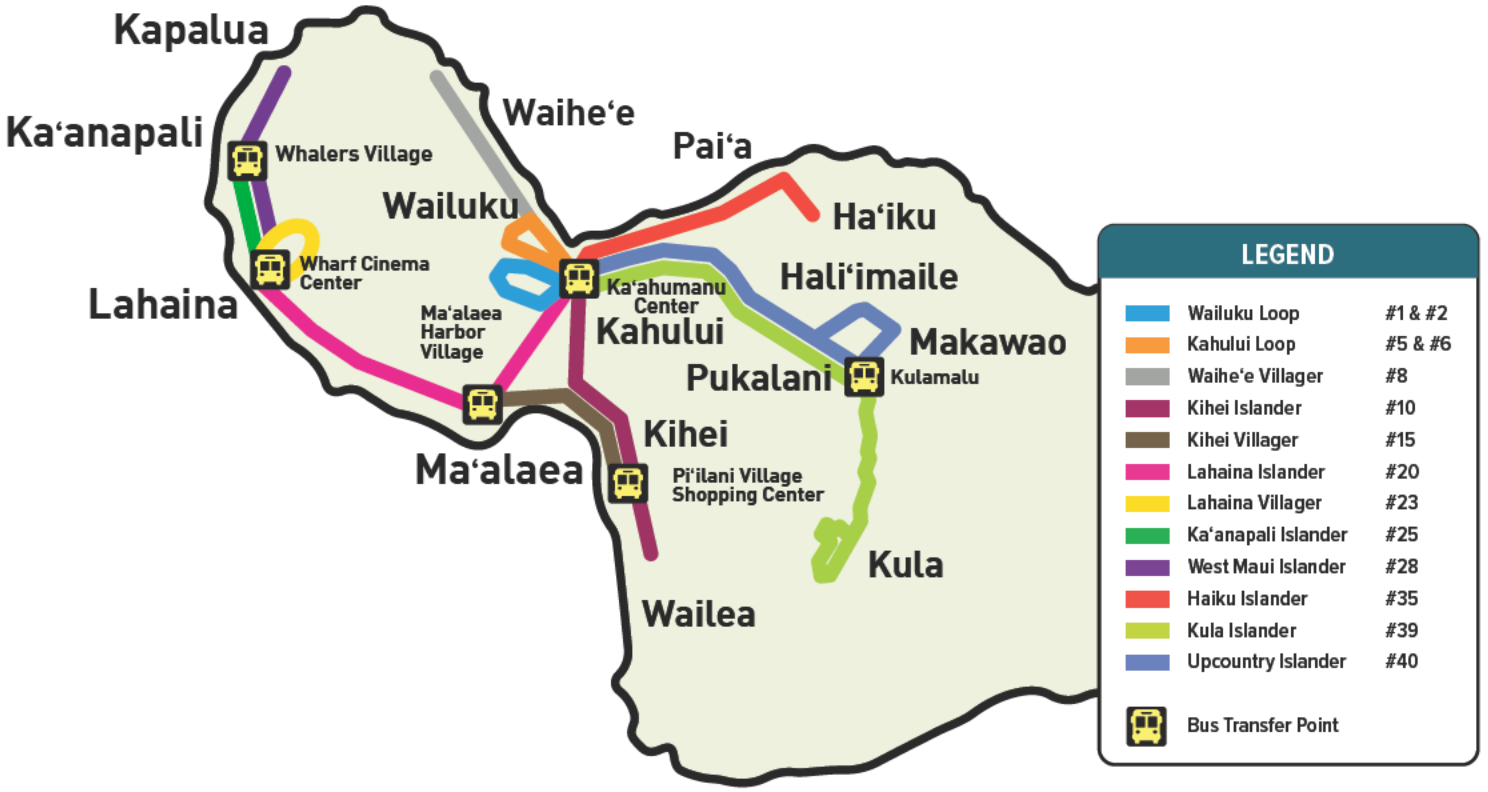
No transfer tickets are given on any of the routes.

FARES

All routes cost $2.00 per boarding. Infants under 2 years old, riding on the lap of an accompanying adult travel free. Daily and monthly passes are also available.

DUE TO SPACE LIMITATIONS, NOT ALL STOPS ARE LISTED ON THE SCHEDULE.

Please refer to the county of Maui website at mauicounty.gov/bus to view route maps.

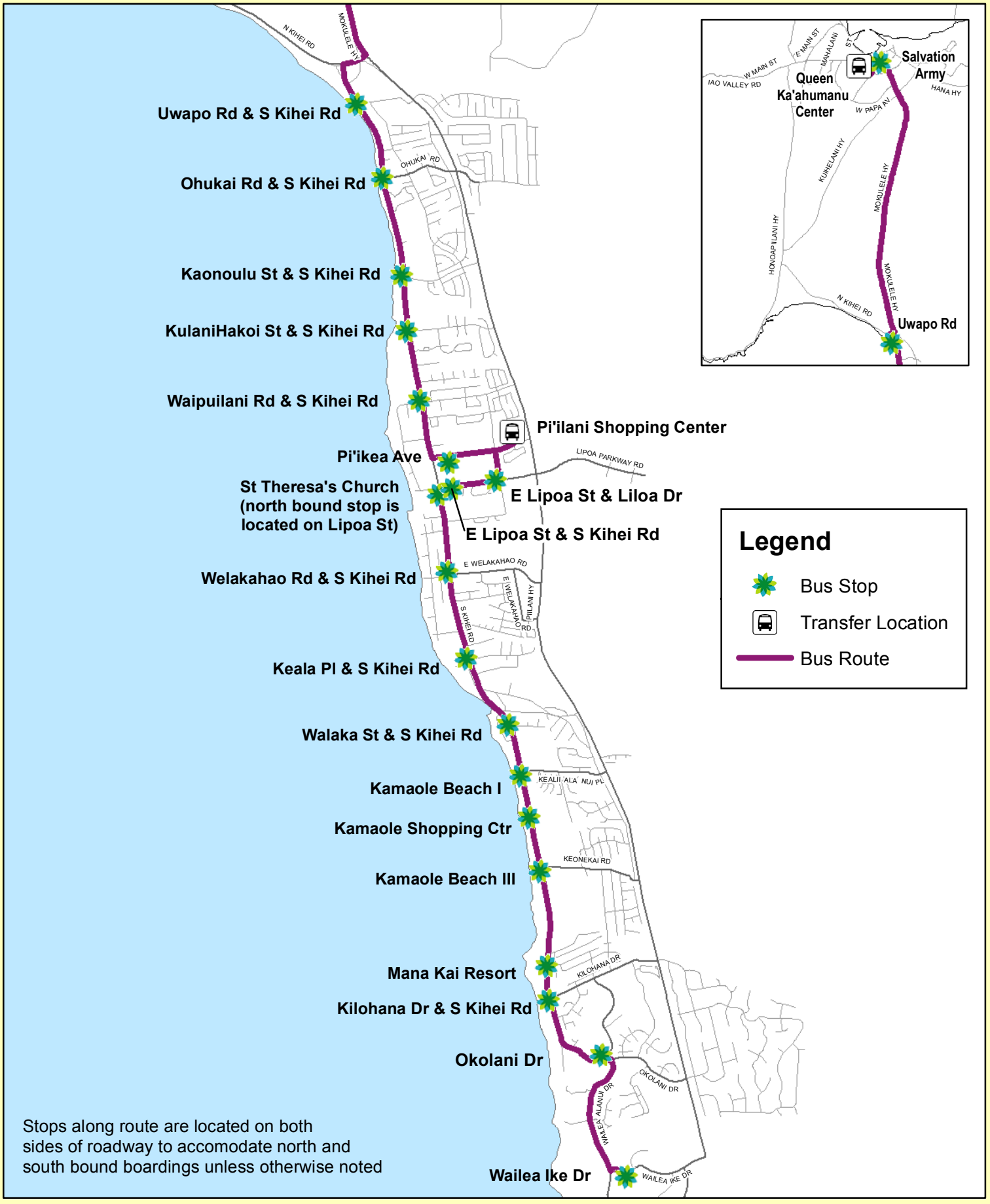


COUNTY OF MAUI · STATE OF HAWAII

maui bus

Operated by
Roberts Hawaii
(808) 871-4838





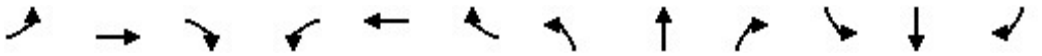
maui bus
2145 Kaohu Street, Suite 102
Wailuku, HI 96793

Kihei Islander Route 10

Operated by Roberts Hawaii (808) 871-4838

C:\Transportation\2011\MXDs\Kihei_Islander20110531.mxd -- 12/28/2012

Appendix B
Analysis Reports Existing (2024) Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	25	11	10	20	136	6	304	10	85	775	158
Future Volume (veh/h)	94	25	11	10	20	136	6	304	10	85	775	158
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	97	26	0	10	21	0	6	313	10	88	799	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	259	176		110	136		14	1058	34	115	1204	
Arrive On Green	0.09	0.09	0.00	0.09	0.09	0.00	0.01	0.59	0.59	0.06	0.64	0.00
Sat Flow, veh/h	1391	1870	0	312	1449	1585	1781	1802	58	1781	1870	1585
Grp Volume(v), veh/h	97	26	0	31	0	0	6	0	323	88	799	0
Grp Sat Flow(s),veh/h/ln	1391	1870	0	1761	0	1585	1781	0	1860	1781	1870	1585
Q Serve(g_s), s	2.8	0.8	0.0	0.0	0.0	0.0	0.2	0.0	5.1	2.9	15.7	0.0
Cycle Q Clear(g_c), s	3.7	0.8	0.0	0.9	0.0	0.0	0.2	0.0	5.1	2.9	15.7	0.0
Prop In Lane	1.00		0.00	0.32		1.00	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	259	176		246	0		14	0	1092	115	1204	
V/C Ratio(X)	0.38	0.15		0.13	0.00		0.42	0.00	0.30	0.76	0.66	
Avail Cap(c_a), veh/h	646	697		715	0		151	0	1092	272	1204	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	25.8	24.6	0.0	24.6	0.0	0.0	29.1	0.0	6.1	27.2	6.5	0.0
Incr Delay (d2), s/veh	0.9	0.4	0.0	0.2	0.0	0.0	18.9	0.0	0.7	10.0	2.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.3	0.0	0.4	0.0	0.0	0.2	0.0	1.6	1.4	4.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.7	24.9	0.0	24.9	0.0	0.0	48.0	0.0	6.8	37.1	9.4	0.0
LnGrp LOS	C	C		C	A		D	A	A	D	A	
Approach Vol, veh/h		123			31			329			887	
Approach Delay, s/veh		26.4			24.9			7.5			12.2	
Approach LOS		C			C			A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.8	39.6		10.5	5.5	43.0		10.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	9.0	34.0		22.0	5.0	38.0		22.0				
Max Q Clear Time (g_c+I1), s	4.9	7.1		5.7	2.2	17.7		2.9				
Green Ext Time (p_c), s	0.1	1.9		0.3	0.0	5.7		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		12.6
HCM 6th LOS		B

Notes

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	34	10	28	25	44	6	211	13	46	680	80
Future Volume (veh/h)	41	34	10	28	25	44	6	211	13	46	680	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	35	0	29	26	0	6	215	0	47	694	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	241	100		231	113		14	775		93	858	
Arrive On Green	0.11	0.11	0.00	0.11	0.11	0.00	0.01	0.41	0.00	0.05	0.46	0.00
Sat Flow, veh/h	752	878	1585	674	991	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	77	0	0	55	0	0	6	215	0	47	694	0
Grp Sat Flow(s),veh/h/ln	1630	0	1585	1666	0	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	0.5	0.0	0.0	0.0	0.0	0.0	0.1	2.7	0.0	0.9	11.4	0.0
Cycle Q Clear(g_c), s	1.5	0.0	0.0	1.0	0.0	0.0	0.1	2.7	0.0	0.9	11.4	0.0
Prop In Lane	0.55		1.00	0.53		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	341	0		344	0		14	775		93	858	
V/C Ratio(X)	0.23	0.00		0.16	0.00		0.42	0.28		0.51	0.81	
Avail Cap(c_a), veh/h	949	0		952	0		249	1150		249	1150	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	14.7	0.0	0.0	14.5	0.0	0.0	17.7	6.9	0.0	16.5	8.3	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.2	0.0	0.0	18.0	0.2	0.0	4.2	3.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.3	0.0	0.0	0.1	0.7	0.0	0.4	3.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.0	0.0	0.0	14.7	0.0	0.0	35.7	7.1	0.0	20.7	11.6	0.0
LnGrp LOS	B	A		B	A		D	A		C	B	
Approach Vol, veh/h		77			55			221			741	
Approach Delay, s/veh		15.0			14.7			7.9			12.2	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.9	19.8		9.1	5.3	21.4		9.1
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	5.9	22.0		18.0	5.0	22.0		18.0
Max Q Clear Time (g_c+I1), s	2.9	4.7		3.5	2.1	13.4		3.0
Green Ext Time (p_c), s	0.0	1.0		0.2	0.0	3.0		0.1

Intersection Summary	
HCM 6th Ctrl Delay	11.6
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	11.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	41	292	105	48	8	126	24	35	5	73	10
Future Vol, veh/h	5	41	292	105	48	8	126	24	35	5	73	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	45	317	114	52	9	137	26	38	5	79	11
Number of Lanes	1	1	1	0	1	1	1	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	3
HCM Control Delay	12.3	12.3	11.2	10.6
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	69%	0%	6%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	31%	0%	94%	0%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	126	24	35	5	41	292	153	8	78	10
LT Vol	126	0	0	5	0	0	105	0	5	0
Through Vol	0	24	0	0	41	0	48	0	73	0
RT Vol	0	0	35	0	0	292	0	8	0	10
Lane Flow Rate	137	26	38	5	45	317	166	9	85	11
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.264	0.047	0.061	0.01	0.075	0.472	0.31	0.014	0.159	0.018
Departure Headway (Hd)	6.951	6.447	5.741	6.558	6.055	5.35	6.705	5.654	6.747	6.007
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	516	554	622	545	591	673	536	631	530	594
Service Time	4.706	4.201	3.495	4.305	3.801	3.096	4.458	3.407	4.507	3.767
HCM Lane V/C Ratio	0.266	0.047	0.061	0.009	0.076	0.471	0.31	0.014	0.16	0.019
HCM Control Delay	12.2	9.5	8.9	9.4	9.3	12.8	12.5	8.5	10.8	8.9
HCM Lane LOS	B	A	A	A	A	B	B	A	B	A
HCM 95th-tile Q	1.1	0.1	0.2	0	0.2	2.5	1.3	0	0.6	0.1



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	377	143	102	109	106	273
Future Volume (veh/h)	377	143	102	109	106	273
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	405	0	110	0	114	294
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	461		841		146	2137
Arrive On Green	0.26	0.00	0.45	0.00	0.08	0.60
Sat Flow, veh/h	1781	1585	1870	1585	1781	3647
Grp Volume(v), veh/h	405	0	110	0	114	294
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1777
Q Serve(g_s), s	15.6	0.0	2.5	0.0	4.5	2.6
Cycle Q Clear(g_c), s	15.6	0.0	2.5	0.0	4.5	2.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	461		841		146	2137
V/C Ratio(X)	0.88		0.13		0.78	0.14
Avail Cap(c_a), veh/h	672		841		199	2137
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	25.4	0.0	11.5	0.0	32.2	6.2
Incr Delay (d2), s/veh	9.1	0.0	0.3	0.0	12.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	0.0	1.0	0.0	2.4	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.5	0.0	11.8	0.0	45.2	6.3
LnGrp LOS	C		B		D	A
Approach Vol, veh/h	405		110			408
Approach Delay, s/veh	34.5		11.8			17.2
Approach LOS	C		B			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.8	37.2			48.0	23.5
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	8.6	30.0			43.0	27.0
Max Q Clear Time (g_c+I1), s	6.5	4.5			4.6	17.6
Green Ext Time (p_c), s	0.0	0.5			2.1	0.9

Intersection Summary	
HCM 6th Ctrl Delay	24.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR, SBT] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	5	8	47	36	23	6	75	12	30	200	91
Future Vol, veh/h	27	5	8	47	36	23	6	75	12	30	200	91
Conflicting Peds, #/hr	15	0	1	1	0	15	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Free	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	300	-	-	100	150	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	29	5	9	51	39	25	6	81	13	32	215	98

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	407	372	216	376	372	-	215	0	0	81	0	0
Stage 1	279	279	-	93	93	-	-	-	-	-	-	-
Stage 2	128	93	-	283	279	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	-	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	-	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	555	558	824	581	558	0	1355	-	-	1517	-	-
Stage 1	728	680	-	914	818	0	-	-	-	-	-	-
Stage 2	876	818	-	724	680	0	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	507	543	823	559	543	-	1355	-	-	1517	-	-
Mov Cap-2 Maneuver	507	543	-	559	543	-	-	-	-	-	-	-
Stage 1	724	666	-	909	814	-	-	-	-	-	-	-
Stage 2	818	814	-	695	666	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12	12.8	0.5	0.7
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1355	-	-	554	552	-	1517	-	-
HCM Lane V/C Ratio	0.005	-	-	0.078	0.162	-	0.021	-	-
HCM Control Delay (s)	7.7	0	-	12	12.8	0	7.4	-	-
HCM Lane LOS	A	A	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.6	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	11	84	2	18	235
Future Vol, veh/h	1	11	84	2	18	235
Conflicting Peds, #/hr	1	0	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	12	89	2	19	250

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	381	92	0	0	92	0
Stage 1	92	-	-	-	-	-
Stage 2	289	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	621	965	-	-	1503	-
Stage 1	932	-	-	-	-	-
Stage 2	760	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	610	962	-	-	1499	-
Mov Cap-2 Maneuver	610	-	-	-	-	-
Stage 1	929	-	-	-	-	-
Stage 2	749	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	0.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	610	962	1499	-
HCM Lane V/C Ratio	-	-	0.002	0.012	0.013	-
HCM Control Delay (s)	-	-	10.9	8.8	7.4	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	10	4	80	230	3
Future Vol, veh/h	3	10	4	80	230	3
Conflicting Peds, #/hr	0	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	11	4	87	250	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	348	254	254	0	-	0
Stage 1	253	-	-	-	-	-
Stage 2	95	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	649	785	1311	-	-	-
Stage 1	789	-	-	-	-	-
Stage 2	929	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	646	784	1310	-	-	-
Mov Cap-2 Maneuver	646	-	-	-	-	-
Stage 1	786	-	-	-	-	-
Stage 2	928	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1310	-	747	-	-
HCM Lane V/C Ratio	0.003	-	0.019	-	-
HCM Control Delay (s)	7.8	-	9.9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	9	7	56	172	48
Future Vol, veh/h	20	9	7	56	172	48
Conflicting Peds, #/hr	0	0	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	9	7	58	179	50

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	281	209	234	0	-	0
Stage 1	209	-	-	-	-	-
Stage 2	72	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	709	831	1333	-	-	-
Stage 1	826	-	-	-	-	-
Stage 2	951	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	698	827	1327	-	-	-
Mov Cap-2 Maneuver	698	-	-	-	-	-
Stage 1	818	-	-	-	-	-
Stage 2	946	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1327	-	734	-	-
HCM Lane V/C Ratio	0.005	-	0.041	-	-
HCM Control Delay (s)	7.7	0	10.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	2	7	59	172	2
Future Vol, veh/h	2	2	7	59	172	2
Conflicting Peds, #/hr	0	0	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	2	8	69	200	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	293	208	209	0	-	0
Stage 1	208	-	-	-	-	-
Stage 2	85	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	698	832	1362	-	-	-
Stage 1	827	-	-	-	-	-
Stage 2	938	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	684	826	1353	-	-	-
Mov Cap-2 Maneuver	684	-	-	-	-	-
Stage 1	816	-	-	-	-	-
Stage 2	931	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	0.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1353	-	748	-	-
HCM Lane V/C Ratio	0.006	-	0.006	-	-
HCM Control Delay (s)	7.7	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	8	53	3	11	165
Future Vol, veh/h	6	8	53	3	11	165
Conflicting Peds, #/hr	1	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	9	62	4	13	194

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	287	66	0	0	68	0
Stage 1	66	-	-	-	-	-
Stage 2	221	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	703	998	-	-	1533	-
Stage 1	957	-	-	-	-	-
Stage 2	816	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	694	996	-	-	1530	-
Mov Cap-2 Maneuver	694	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	807	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	839	1530	-
HCM Lane V/C Ratio	-	-	0.02	0.008	-
HCM Control Delay (s)	-	-	9.4	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	6	47	9	17	135
Future Vol, veh/h	1	6	47	9	17	135
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	7	54	10	20	155

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	254	59	0	0	64	0
Stage 1	59	-	-	-	-	-
Stage 2	195	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	735	1007	-	-	1538	-
Stage 1	964	-	-	-	-	-
Stage 2	838	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	725	1007	-	-	1538	-
Mov Cap-2 Maneuver	725	-	-	-	-	-
Stage 1	964	-	-	-	-	-
Stage 2	826	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	0.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	954	1538	-
HCM Lane V/C Ratio	-	-	0.008	0.013	-
HCM Control Delay (s)	-	-	8.8	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

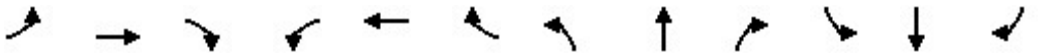
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	6	5	42	92	35
Future Vol, veh/h	2	6	5	42	92	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	7	6	52	114	43

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	200	136	157	0	-	0
Stage 1	136	-	-	-	-	-
Stage 2	64	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	789	913	1423	-	-	-
Stage 1	890	-	-	-	-	-
Stage 2	959	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	786	913	1423	-	-	-
Mov Cap-2 Maneuver	786	-	-	-	-	-
Stage 1	886	-	-	-	-	-
Stage 2	959	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	0.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1423	-	878	-	-
HCM Lane V/C Ratio	0.004	-	0.011	-	-
HCM Control Delay (s)	7.5	0	9.1	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	196	26	12	4	20	102	10	816	12	111	601	128
Future Volume (veh/h)	196	26	12	4	20	102	10	816	12	111	601	128
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	200	27	0	4	20	0	10	833	12	113	613	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	263	288		55	249		20	1248	18	134	1389	
Arrive On Green	0.15	0.15	0.00	0.15	0.15	0.00	0.01	0.68	0.68	0.08	0.74	0.00
Sat Flow, veh/h	1392	1870	0	189	1615	1585	1781	1839	26	1781	1870	1585
Grp Volume(v), veh/h	200	27	0	24	0	0	10	0	845	113	613	0
Grp Sat Flow(s),veh/h/ln	1392	1870	0	1804	0	1585	1781	0	1866	1781	1870	1585
Q Serve(g_s), s	20.7	2.0	0.0	0.0	0.0	0.0	0.9	0.0	43.4	10.2	20.4	0.0
Cycle Q Clear(g_c), s	22.5	2.0	0.0	1.8	0.0	0.0	0.9	0.0	43.4	10.2	20.4	0.0
Prop In Lane	1.00		0.00	0.17		1.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	263	288		304	0		20	0	1266	134	1389	
V/C Ratio(X)	0.76	0.09		0.08	0.00		0.50	0.00	0.67	0.84	0.44	
Avail Cap(c_a), veh/h	382	448		454	0		55	0	1266	219	1389	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	67.6	59.1	0.0	59.1	0.0	0.0	80.1	0.0	15.4	74.4	8.0	0.0
Incr Delay (d2), s/veh	5.3	0.1	0.0	0.1	0.0	0.0	18.3	0.0	2.8	14.4	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	1.0	0.0	0.9	0.0	0.0	0.5	0.0	18.7	5.2	8.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.9	59.3	0.0	59.2	0.0	0.0	98.4	0.0	18.2	88.8	9.0	0.0
LnGrp LOS	E	E		E	A		F	A	B	F	A	
Approach Vol, veh/h		227			24			855			726	
Approach Delay, s/veh		71.2			59.2			19.1			21.5	
Approach LOS		E			E			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.3	115.5		30.1	6.8	126.0		30.1				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	20.0	106.0		39.0	5.0	121.0		39.0				
Max Q Clear Time (g_c+I1), s	12.2	45.4		24.5	2.9	22.4		3.8				
Green Ext Time (p_c), s	0.1	7.8		0.6	0.0	4.6		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		27.0	
HCM 6th LOS		C	

Notes

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	23	19	17	16	50	8	734	50	44	505	69
Future Volume (veh/h)	85	23	19	17	16	50	8	734	50	44	505	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	89	24	0	18	17	0	8	773	0	46	532	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	272	34		189	119		19	942		87	1014	
Arrive On Green	0.10	0.10	0.00	0.10	0.10	0.00	0.01	0.50	0.00	0.05	0.54	0.00
Sat Flow, veh/h	1204	325	1585	614	1147	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	113	0	0	35	0	0	8	773	0	46	532	0
Grp Sat Flow(s),veh/h/ln	1529	0	1585	1761	0	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.3	0.0	0.0	0.0	0.0	0.0	0.2	15.3	0.0	1.1	8.0	0.0
Cycle Q Clear(g_c), s	3.1	0.0	0.0	0.7	0.0	0.0	0.2	15.3	0.0	1.1	8.0	0.0
Prop In Lane	0.79		1.00	0.51		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	306	0		308	0		19	942		87	1014	
V/C Ratio(X)	0.37	0.00		0.11	0.00		0.42	0.82		0.53	0.52	
Avail Cap(c_a), veh/h	761	0		797	0		204	1370		204	1370	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.9	0.0	0.0	17.9	0.0	0.0	21.5	9.2	0.0	20.3	6.4	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.2	0.0	0.0	14.4	2.7	0.0	4.9	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.3	0.0	0.0	0.1	4.5	0.0	0.5	2.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.6	0.0	0.0	18.0	0.0	0.0	35.9	11.8	0.0	25.1	6.8	0.0
LnGrp LOS	B	A		B	A		D	B		C	A	
Approach Vol, veh/h		113			35			781			578	
Approach Delay, s/veh		19.6			18.0			12.1			8.3	
Approach LOS		B			B			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.1	27.0		9.5	5.5	28.7		9.5
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	5.6	32.0		18.0	5.0	32.0		18.0
Max Q Clear Time (g_c+I1), s	3.1	17.3		5.1	2.2	10.0		2.7
Green Ext Time (p_c), s	0.0	4.7		0.4	0.0	3.4		0.1

Intersection Summary	
HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	14.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	34	252	83	34	9	264	116	116	6	40	7
Future Vol, veh/h	5	34	252	83	34	9	264	116	116	6	40	7
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	40	296	98	40	11	311	136	136	7	47	8
Number of Lanes	1	1	1	0	1	1	1	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	3
HCM Control Delay	14.8	13.5	15.4	11.3
HCM LOS	B	B	C	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	71%	0%	13%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	29%	0%	87%	0%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	264	116	116	5	34	252	117	9	46	7
LT Vol	264	0	0	5	0	0	83	0	6	0
Through Vol	0	116	0	0	34	0	34	0	40	0
RT Vol	0	0	116	0	0	252	0	9	0	7
Lane Flow Rate	311	136	136	6	40	296	138	11	54	8
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.597	0.243	0.216	0.012	0.077	0.514	0.298	0.02	0.117	0.016
Departure Headway (Hd)	6.915	6.412	5.706	7.448	6.943	6.236	7.79	6.721	7.756	6.978
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	519	555	624	477	512	572	464	536	464	515
Service Time	4.703	4.199	3.493	5.246	4.74	4.033	5.494	4.424	5.465	4.688
HCM Lane V/C Ratio	0.599	0.245	0.218	0.013	0.078	0.517	0.297	0.021	0.116	0.016
HCM Control Delay	19.5	11.3	10.1	10.3	10.3	15.5	13.8	9.6	11.5	9.8
HCM Lane LOS	C	B	B	B	B	C	B	A	B	A
HCM 95th-tile Q	3.9	0.9	0.8	0	0.2	2.9	1.2	0.1	0.4	0



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	284	173	272	473	168	208
Future Volume (veh/h)	284	173	272	473	168	208
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	342	0	328	0	202	251
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	402		793		234	2233
Arrive On Green	0.23	0.00	0.42	0.00	0.13	0.63
Sat Flow, veh/h	1781	1585	1870	1585	1781	3647
Grp Volume(v), veh/h	342	0	328	0	202	251
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1777
Q Serve(g_s), s	12.6	0.0	8.4	0.0	7.6	1.9
Cycle Q Clear(g_c), s	12.6	0.0	8.4	0.0	7.6	1.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	402		793		234	2233
V/C Ratio(X)	0.85		0.41		0.86	0.11
Avail Cap(c_a), veh/h	703		793		234	2233
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	25.4	0.0	13.8	0.0	29.1	5.1
Incr Delay (d2), s/veh	5.2	0.0	1.6	0.0	26.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	3.6	0.0	4.8	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.6	0.0	15.4	0.0	55.5	5.2
LnGrp LOS	C		B		E	A
Approach Vol, veh/h	342		328			453
Approach Delay, s/veh	30.6		15.4			27.6
Approach LOS	C		B			C

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	14.0	34.0			48.0	20.4
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	9.0	29.0			43.0	27.0
Max Q Clear Time (g_c+I1), s	9.6	10.4			3.9	14.6
Green Ext Time (p_c), s	0.0	1.8			1.7	0.9

Intersection Summary	
HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	84	32	9	34	9	34	7	325	51	19	190	53
Future Vol, veh/h	84	32	9	34	9	34	7	325	51	19	190	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Free	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	300	-	-	100	150	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	88	34	9	36	9	36	7	342	54	20	200	56

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	601	596	200	613	596	-	200	0	0	342	0	0
Stage 1	240	240	-	356	356	-	-	-	-	-	-	-
Stage 2	361	356	-	257	240	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	-	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	-	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	412	417	841	405	417	0	1372	-	-	1217	-	-
Stage 1	763	707	-	661	629	0	-	-	-	-	-	-
Stage 2	657	629	-	748	707	0	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	398	407	841	369	407	-	1372	-	-	1217	-	-
Mov Cap-2 Maneuver	398	407	-	369	407	-	-	-	-	-	-	-
Stage 1	758	696	-	656	625	-	-	-	-	-	-	-
Stage 2	643	625	-	692	696	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.6	15.9	0.1	0.6
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1372	-	-	416	376	-	1217	-	-
HCM Lane V/C Ratio	0.005	-	-	0.316	0.12	-	0.016	-	-
HCM Control Delay (s)	7.6	0	-	17.6	15.9	0	8	-	-
HCM Lane LOS	A	A	-	C	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.3	0.4	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	17	355	4	28	204
Future Vol, veh/h	2	17	355	4	28	204
Conflicting Peds, #/hr	1	0	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	19	399	4	31	229

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	694	402	0	0	402	0
Stage 1	402	-	-	-	-	-
Stage 2	292	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	409	648	-	-	1157	-
Stage 1	676	-	-	-	-	-
Stage 2	758	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	396	646	-	-	1154	-
Mov Cap-2 Maneuver	396	-	-	-	-	-
Stage 1	674	-	-	-	-	-
Stage 2	737	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.1	0	1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	396	646	1154	-
HCM Lane V/C Ratio	-	-	0.006	0.03	0.027	-
HCM Control Delay (s)	-	-	14.1	10.7	8.2	-
HCM Lane LOS	-	-	B	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0.1	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	10	8	352	201	4
Future Vol, veh/h	4	10	8	352	201	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	12	10	424	242	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	689	245	247	0	-	0
Stage 1	245	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	412	794	1319	-	-	-
Stage 1	796	-	-	-	-	-
Stage 2	646	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	409	794	1319	-	-	-
Mov Cap-2 Maneuver	409	-	-	-	-	-
Stage 1	790	-	-	-	-	-
Stage 2	646	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1319	-	626	-	-
HCM Lane V/C Ratio	0.007	-	0.027	-	-
HCM Control Delay (s)	7.7	-	10.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	43	12	10	272	152	33
Future Vol, veh/h	43	12	10	272	152	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	51	14	12	320	179	39

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	543	199	218	0	-	0
Stage 1	199	-	-	-	-	-
Stage 2	344	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	501	842	1352	-	-	-
Stage 1	835	-	-	-	-	-
Stage 2	718	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	495	842	1352	-	-	-
Mov Cap-2 Maneuver	495	-	-	-	-	-
Stage 1	826	-	-	-	-	-
Stage 2	718	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.5	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1352	-	544	-	-
HCM Lane V/C Ratio	0.009	-	0.119	-	-
HCM Control Delay (s)	7.7	0	12.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	1	273	160	1
Future Vol, veh/h	1	1	1	273	160	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	1	1	321	188	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	512	189	189	0	-	0
Stage 1	189	-	-	-	-	-
Stage 2	323	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	522	853	1385	-	-	-
Stage 1	843	-	-	-	-	-
Stage 2	734	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	521	853	1385	-	-	-
Mov Cap-2 Maneuver	521	-	-	-	-	-
Stage 1	842	-	-	-	-	-
Stage 2	734	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1385	-	647	-	-
HCM Lane V/C Ratio	0.001	-	0.004	-	-
HCM Control Delay (s)	7.6	0	10.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	28	248	9	2	161
Future Vol, veh/h	10	28	248	9	2	161
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	34	302	11	2	196

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	509	309	0	0	314	0
Stage 1	309	-	-	-	-	-
Stage 2	200	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	524	731	-	-	1246	-
Stage 1	745	-	-	-	-	-
Stage 2	834	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	522	730	-	-	1245	-
Mov Cap-2 Maneuver	522	-	-	-	-	-
Stage 1	744	-	-	-	-	-
Stage 2	832	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	661	1245	-
HCM Lane V/C Ratio	-	-	0.07	0.002	-
HCM Control Delay (s)	-	-	10.9	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	17	202	27	2	150
Future Vol, veh/h	1	17	202	27	2	150
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	21	253	34	3	188

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	464	270	0	0	287	0
Stage 1	270	-	-	-	-	-
Stage 2	194	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	556	769	-	-	1275	-
Stage 1	775	-	-	-	-	-
Stage 2	839	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	554	769	-	-	1275	-
Mov Cap-2 Maneuver	554	-	-	-	-	-
Stage 1	775	-	-	-	-	-
Stage 2	836	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	753	1275	-
HCM Lane V/C Ratio	-	-	0.03	0.002	-
HCM Control Delay (s)	-	-	9.9	7.8	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	42	7	5	150	140	16
Future Vol, veh/h	42	7	5	150	140	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	53	9	6	188	175	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	385	185	195	0	-	0
Stage 1	185	-	-	-	-	-
Stage 2	200	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	618	857	1378	-	-	-
Stage 1	847	-	-	-	-	-
Stage 2	834	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	615	857	1378	-	-	-
Mov Cap-2 Maneuver	615	-	-	-	-	-
Stage 1	843	-	-	-	-	-
Stage 2	834	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.2	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1378	-	641	-	-
HCM Lane V/C Ratio	0.005	-	0.096	-	-
HCM Control Delay (s)	7.6	0	11.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Appendix C
Honua‘ula Exhibit “B”

HONUAULA 30
CONDITIONS

EXHIBIT "2"

Conditions of Zoning

1. That Honua`ula Partners, LLC, its successors and permitted assigns, shall, at their own cost and expense, develop, maintain, and operate, or cause to be developed, maintained, and operated, a private water source, storage facilities, and transmission lines for the Wailea 670 project in accordance with Department of Water Supply standards and all applicable community plans. Honua`ula Partners, LLC, its successors and permitted assigns, shall comply with all reporting requirements of the State Commission on Water Resource Management.

   In addition, Honua`ula Partners, LLC, its successors and permitted assigns, shall comply with applicable water ordinances that pertain to the supply and transmission of water from the island of Maui when such ordinances are enacted.

   At the time the project water system is completed, Honua`ula Partners, LLC, its successors and permitted assigns, shall offer to the County the right to purchase the project water system at the cost of development of such system.

   The water rates for the residential workforce housing units shall be no higher than the general water consumer rates set by the County in its annual budget, for as long as the units are subject to Chapter 2.96, Maui County Code.

2. That Honua`ula Partners, LLC, its successors and permitted assigns, shall implement the following traffic improvements:

   a. Upgrade Piilani Highway, from Kilohana Drive to Wailea Ike Drive, to four lanes of traffic. The improvements shall be completed prior to the commencement of any construction on the site, with the exception of grading.

   b. Extend Piilani Highway for two lanes of traffic from Wailea Ike Drive to Kaukahi Street. The improvement shall be constructed at or prior to the completion of 50 percent of the project. Said improvement shall be maintained by Honua`ula Partners, LLC, its successors and permitted assigns.

   c. Signalize the Piilani Highway/Okolani Drive/Mikioi Place intersection and provide an exclusive left-turn lane on Okolani Drive prior to occupancy of the first unit in Kihei-Makena Project District 9.

   d. Modify the Piilani Highway/Wailea Ike Drive intersection into a signalized intersection and provide a free right-turn lane from Piilani Highway to Wailea Ike Drive and a second right-turn lane from

Wailea Ike Drive to northbound Piilani Highway prior to occupancy of the first unit in Kihei-Makena Project District 9.

e. Modify the Wailea Alanui/Wailea Ike Drive intersection to add a signalized double right-turn movement from northbound to eastbound turning traffic and provide two left-turn lanes for southbound traffic from Wailea Ike Drive prior to occupancy of the first unit in Kihei-Makena Project District 9.

f. Modify the Piilani Highway/Kilohana Drive/Mapu Place intersection to provide an exclusive left-turn lane, and the southbound Piilani Highway approach to provide an exclusive right-turn lane into Mapu Place prior to occupancy of the first unit in Kihei-Makena Project District 9.

g. Signalize the Wailea Ike Drive/Kalai Waa Street intersection in coordination with Wailea Resort and Makena Resort when warranted.

h. Signalize the Wailea Alanui/Kaukahi Drive/Kaukahi Street intersection in coordination with Wailea Resort and Makena Resort when warranted.

3. That, as represented, Honua`ula Partners, LLC, its successors and permitted assigns, shall make a contribution to the County for traffic improvements in an amount equal to $5,000 per unit. The contribution shall be paid to the County prior to issuance of a building permit. Upon adoption of a traffic impact fee ordinance, Honua`ula Partners, LLC, its successors and permitted assigns, shall comply with the ordinance in lieu of this voluntary contribution. Should a traffic impact fee ordinance be adopted prior to the collection of this contribution, the applicable amount shall be the greater of the two. Such contributions or fees shall not be a substitute for any other traffic infrastructure requirements related to the Change in Zoning.

4. That Honua`ula Partners, LLC, its successors and permitted assigns, shall be responsible for all required infrastructural improvements for the project, including water source and system improvements for potable and nonpotable use and fire protection, drainage improvements, traffic-related improvements, wastewater system improvements and utility upgrades, as determined by the appropriate governmental agencies and public utility companies. Except as otherwise provided by more specific conditions of zoning, said improvements shall be constructed and implemented concurrently with the development of each phase of Kihei-Makena Project District 9, and shall be completed prior to issuance of any certificate of occupancy or final subdivision approval, unless improvements are bonded by Honua`ula Partners, LLC, its successors and permitted assigns. Honua`ula Partners, LLC shall execute appropriate agreements with governmental agencies regarding participation in improvements of infrastructure and public facilities as determined by the agencies.

5. That Honua`ula Partners, LLC, its successors and permitted assigns, shall provide workforce housing in accordance with Chapter 2.96, Maui County Code (the "Residential Workforce Housing Policy"); provided that, 250 of the required workforce housing units shall be located at the Kaonoulu Light Industrial Subdivision and completed prior to any market-rate unit, that 125 of those workforce housing units shall be ownership units, and that 125 of those units shall be rental units. In addition, construction of those workforce housing units shall be commenced within two years, provided all necessary permits can be obtained within that timeframe. Honua`ula Partners, LLC, its successors and permitted assigns, shall provide a minimum two-acre park at the Kaonoulu Light Industrial Subdivision, which shall be credited toward the requirements of Section 18.16.320, Maui County Code, for that subdivision.

6. That a Drainage Master Plan and Phasing Plan of improvements shall be submitted for review and approval during Project District Phase II processing. Said plan shall include the recommended drainage improvements as represented in the Preliminary Drainage Report. The County may require periodic updates of the Drainage Master Plan and Phasing Plan.

7. That Honua`ula Partners, LLC, its successors and permitted assigns, shall prepare an animal management plan that shall be submitted during Project District Phase II processing and approved by the Department of Land and Natural Resources prior to submittal of Project District Phase III processing. Said plan shall include procedures for the management of animal intrusions including, but not limited to, construction of boundary or perimeter fencing, wildlife control permits, and rodent and feral cat control. Honua`ula Partners, LLC, its successors and permitted assigns, shall implement the approved animal management plan. The Department of Land and Natural Resources may require periodic updates of the plan.

8. That Honua`ula Partners, LLC, its successors and permitted assigns, shall inform owners within Kihei-Makena Project District 9 that the area is subject to the intrusion of mammals such as axis deer, pigs, and rodents, and the impacts and management plan associated with such intrusions.

9. That Honua`ula Partners, LLC, its successors and permitted assigns, shall prepare an assessment of the owl (Pueo or Hawaiian Short-eared Owl) and the Hawaiian Hoary Bat in coordination with the Department of Land and Natural Resources, and, if appropriate, mitigative measures shall be incorporated into Kihei-Makena Project District 9. Said assessment shall be prepared prior to submittal of Project District Phase II processing.

10. That, in lieu of the dedication of a Little League Field and related amenities as originally specified in Ordinance No. 2171 (1992), Exhibit "B", Condition No. 8, and based on current land and construction cost estimates for the Little League Field, not less than $5,000,000 shall be paid to the County upon Project District

Phase II approval for the development of the South Maui Community Park. Said amount shall not be credited against future park assessments.

11. That Honua`ula Partners, LLC is proposing to develop 6 acres of private parks and 84 acres of open space within the development. Said private parks shall be open to the public and privately maintained. Furthermore, said private parks and open space shall not be used to satisfy the park assessment requirements under Section 18.16.320, Maui County Code, or for future credits under said subdivision ordinance. The Director of Parks and Recreation and Honua`ula Partners, LLC agree that the park assessment shall be satisfied with an in-lieu cash contribution for the entire project. The amounts and timing of payment of said in-lieu fees shall be subject to the provisions of Section 18.16.320, Maui County Code.

12. That, as represented by Honua`ula Partners, LLC, the golf course shall be subject to the following conditions:

    a. Honua`ula Partners, LLC, its successors and permitted assigns, shall permit one nonprofit organization per quarter of the calendar year, other than Maui Junior Golf Association ("Maui Junior Golf"), the use of the golf course and the clubhouse for a fund-raising activity upon terms mutually agreed upon with said nonprofit organization.

    b. Honua`ula Partners, LLC, its successors and permitted assigns, shall: (1) develop an organized instructional program for junior golfers at its facility from September to January each year; (2) permit Maui Junior Golf the use of the golf course in accordance with Honua`ula Partners, LLC's instructional program; and (3) sponsor one Maui Junior Golf fund-raising tournament per year. The terms of the Junior Golf Program by Honua`ula Partners, LLC shall be as follows:

        The instructional program will be developed to teach youngsters ages 12 to 18 years of age the fundamentals of golf and how to play the game, while also providing quality instruction/training three days a week from September 1 through January 31, with some blackout dates. This program will support the overall efforts of Maui Junior Golf.

        Private lessons will also be available at a discounted rate of 50 percent of the regular rate based on two lessons per junior golfer for a maximum of 50 lessons per month from February through August on a space-available basis.

        For the annual fund-raising event for the Maui Junior Golf, the rate per player shall be 50 percent of the regular rate with the number of golfers limited to no more than 144 players per event.

c. Honua`ula Partners, LLC, its successors and permitted assigns, shall permit the Maui Interscholastic League ("MIL") and the Hawaii High School Athletic Association ("HHSAA") to each use the golf course once per year for an official MIL golf tournament or an official HHSAA golf tournament if requested by the MIL or the HHSAA, or for regular season play-offs if requested by the MIL.

d. Honua`ula Partners, LLC, its successors and permitted assigns, shall permit Maui residents to play at the golf course on Tuesday of each week. The charge for Maui residents for green fees, including golf cart rental fees, shall not exceed 40 percent of the average market rate for green fees and golf cart rental fees in South Maui, and shall exclude all membership fees.

13. That Honua`ula Partners, LLC, its successors and permitted assigns, shall prepare a Cultural Resources Preservation Plan ("CRPP"), in consultation with: Na Kupuna O Maui; lineal descendents of the area; other Native Hawaiian groups; the Maui County Cultural Resources Commission; the Maui/Lanai Island Burial Council; the Office of Hawaiian Affairs; the State Historic Preservation Division, Department of Land and Natural Resources; the Maui County Council; Na Ala Hele; and all other interested parties. Prior to initiating this consultation process, Honua`ula Partners, LLC, its successors and permitted assigns, shall publish a single public notice in a Maui newspaper and a State-wide newspaper that are published weekly. The CRPP shall consider access to specific sites to be preserved, the manner and method of preservation of sites, the appropriate protocol for visitation to cultural sites, and recognition of public access in accordance with the Constitution of the State of Hawaii, the Hawaii Revised Statutes, and other laws, in Kihei-Makena Project District 9.

Upon completion of the CRPP, Honua`ula Partners, LLC, its successors and permitted assigns, shall submit the plan to the State Historic Preservation Division, Department of Land and Natural Resources, and the Office of Hawaiian Affairs for review and recommendations prior to Project District Phase II approval. Upon receipt of the above agencies' comments and recommendations, the CRPP shall be forwarded to the Maui County Cultural Resources Commission for its review and adoption prior to Project District Phase II approval.

14. That a nonpotable water supply system shall be utilized for all irrigation purposes.

15. That, during construction, all dust control shall utilize nonpotable water or effluent, which may be obtained from the Kihei Wastewater Reclamation Facility when available.

16. That Honua`ula Partners, LLC, its successors and permitted assigns, shall provide a Sewage Disposal Analysis that has been reviewed and commented on by the State Department of Health, the State Department of Land and Natural Resources,

the County Department of Environmental Management, and the County Department of Water Supply prior to Project District Phase II approval. The Sewage Disposal Analysis, along with reviews and comments, shall be submitted to the Maui County Council for review and the project shall be subject to additional conditions or amendments by the Maui County Council if warranted by the Sewage Disposal Analysis.

17. That Honua`ula Partners, LLC, its successors and permitted assigns, shall construct, maintain, and/or participate in the operation of a private wastewater treatment facility and system that accommodate the needs of the entire Kihei-Makena Project District 9. All reclaimed water from the private wastewater treatment facility shall be utilized for irrigation, dust control, or other nonpotable purposes, and none of the reclaimed water shall be placed into injection wells.

    The sewer rates for the residential workforce housing units shall be no higher than the residential sewer rates set by the County in its annual budget, for as long as the units are subject to Chapter 2.96, Maui County Code.

18. That Honua`ula Partners, LLC, its successors and permitted assigns, shall address in their Project District Phase II application the following:

    a. Condition 1 of the Department of Health's "Twelve Conditions Applicable To All New Golf Course Development" ("12 Conditions") relating to an approved sampling plan, establishment of the baseline groundwater/vadose zone water quality, and if appropriate, nearshore water quality, has been met to the satisfaction of the Director of Health;

    b. Conditions 2 and 3 of the Department of Health's "12 Conditions" relating to groundwater monitoring have been satisfied by the Director of Health;

    c. Condition 4 relating to the preliminary proposal of the individual treatment system meets the requirements of the Department of Health, and final design shall be approved at the time of Project District Phase III;

    d. Condition 5 of the Department of Health's "12 Conditions" relating to use of effluent has been satisfied;

    e. Condition 6 of the Department of Health's "12 Conditions" relating to golf carts and storage of petroleum has been addressed and incorporated in the design and layout of the buildings;

    f. Conditions 7, 8, and 11 of the Department of Health's "12 Conditions" relating to fertilizers, biocides, and pesticides and the Integrated Golf Course Management Plan have been reviewed, and comments from the Department of Agriculture and the Department of Health have been incorporated in the design and layout of the golf courses;

g. Condition 9 of the Department of Health's "12 Conditions" relating to noise from maintenance facilities has been addressed through the location and design of the maintenance activities and facilities;

h. Condition 10 of the Department of Health's "12 Conditions" and the County Department of Environmental Management's concerns and recommendations relating to solid waste disposal management activities and facilities are identified and designed;

i. Condition 12 of the Department of Health's "12 Conditions" relating to soil runoff during construction and concerns of the State Department of Transportation; the County Department of Public Works; the State Department of Health; and the Natural Resources Conservation Service of the United States Department of Agriculture relating to drainage are addressed and incorporated in the design and layout of the plans, and a preliminary erosion control and drainage report is included in the application;

j. Confirmation from Maui Electric Company, Ltd. ("MECO") that the proposal to relocate and/or landscape MECO facilities is incorporated in the application and site plan; and

k. Roadway improvements to the satisfaction of the State Department of Transportation and the County Department of Public Works and proposed agreements are incorporated in the application and site plan and finalized as part of Project District Phase II approval.

19. That Honua`ula Partners, LLC, its successors and permitted assigns, shall execute appropriate agreements with the State of Hawaii and County of Maui agencies regarding participation in improvements of infrastructure and public facilities where such improvements are reasonably related to Honua`ula Partners, LLC 's project.

20. That marine monitoring programs shall be conducted which include monitoring and assessment of coastal water resources (groundwater and surface water) that receive surface water or groundwater discharges from the hydrologic unit where the project is located. Monitoring programs shall include both water quality and ecological monitoring.

Water Quality Monitoring shall provide water quality data adequate to assess compliance with applicable State water quality standards at Hawaii Administrative Rules Chapter 11-54. Assessment procedures shall be in accordance with the current Hawaii Department of Health ("HIDOH") methodology for Clean Water Act Section 305(b) water quality assessment, including use of approved analytical methods and quality control/quality

assurance measures. The water quality data shall be submitted annually to HIDOH for use in the State's Integrated Report of Assessed Waters prepared under Clean Water Act Sections 303(d) and 305(b). If this report lists the receiving waters as impaired and requiring a Total Maximum Daily Load ("TMDL") study, then the monitoring program shall be amended to evaluate land-based pollutants, including: (1) monitoring of surface water and groundwater quality for the pollutants identified as the source of the impairment; and (2) providing estimates of total mass discharge of those pollutants on a daily and annual basis from all sources, including infiltration, injection, and runoff. The results of the land-based pollution water quality monitoring and loading estimate shall be submitted to the HIDOH Environmental Planning Office, TMDL Program.

The ecological monitoring shall include ecological assessment in accordance with the Coral Reef Assessment and Monitoring Program protocols used by the Department of Land and Natural Resources. The initial assessment shall use the full protocol. Subsequent annual assessments can use the Rapid Assessment Techniques. Results shall be reported annually to the Aquatic Resources Division, Department of Land and Natural Resources.

21. That all exterior lighting shall be shielded from adjacent residential properties and near shore waters. Lighting requirements in force at the time of building permit application shall be applied.

22. That Honua`ula Partners, LLC, its successors and permitted assigns, shall pay the Department of Education $3,000 per dwelling unit upon issuance of each building permit to be used, to the extent possible, for schools serving the Kihei-Makena Community Plan area; provided that, should the State pass legislation imposing school impact fees that apply to Kihei-Makena Project District 9, Honua`ula Partners, LLC, its successors and permitted assigns, shall from that point forward comply with the State requirements, or contribute $3,000 per dwelling unit, whichever is greater.

23. That Honua`ula Partners, LLC, its successors and permitted assigns, shall fund and construct adequate civil defense measures as determined by the State and County of Maui civil defense agencies.

24. That Honua`ula Partners, LLC, its successors and permitted assigns, shall provide to the County two acres of land with direct access to the Piilani Highway extension for the development of fire control facilities within the village mixed-use sub-district at the time 50 percent of the total unit/lot count has received either a certificate of occupancy or final subdivision approval. The acreage provided shall have roadway and full utility services provided to the parcel.

That Honua`ula Partners, LLC, its successors and permitted assigns, shall contribute $550,000 to the County for the development of a police station in South Maui, to be paid at the time a contract is entered into for the construction of that police station.

25. That no transient vacation rentals or time shares shall be allowed within Kihei-Makena Project District 9; and further, no special use permit or conditional permit for such accommodations shall be accepted by the Department of Planning.

26. That Honua`ula Partners, LLC, its successors and permitted assigns, shall provide a preservation/mitigation plan pursuant to Chapter 6E, Hawaii Revised Statutes, that has been approved by the State Historic Preservation Division, Department of Land and Natural Resources, and the Office of Hawaiian Affairs prior to Project District Phase II approval.

27. That Honua`ula Partners, LLC, its successors and permitted assigns, shall provide the report "Remnant Wiliwili Forest Habitat at Wailea 670, Maui, Hawaii by Lee Altenberg, Ph.D.", along with a preservation/mitigation plan, to the State Department of Land and Natural Resources, the United States Fish and Wildlife Service, and the United States Corps of Engineers for review and recommendations prior to Project District Phase II approval. The Maui Planning Commission shall consider adoption of the plan prior to Project District Phase II approval.

Such plan shall include a minimum preservation standard as follows: That Honua`ula Partners, LLC, its successors and permitted assigns, shall establish in perpetuity a Conservation Easement (the "Easement"), entitled "Native Plant Preservation Area", for the conservation of native Hawaiian plants and significant cultural sites in Kihei-Makena Project District 9 as shown on the attached map. The Easement shall comprise the portion of the property south of latitude 20°40'15.00"N, excluding any portions that the State Department of Land and Natural Resources, the United States Fish and Wildlife Service, and the United States Corps of Engineers find do not merit preservation, but shall not be less than 18 acres and shall not exceed 130 acres.

The scope of the Easement shall be set forth in an agreement between Honua`ula Partners, LLC and the County that shall include:

a. A commitment from Honua`ula Partners, LLC, its successors and permitted assigns, to protect and preserve the Easement for the protection of native Hawaiian plants and significant cultural sites worthy of preservation, restoration, and interpretation for public education and enrichment consistent with a Conservation Plan for the Easement developed by Honua`ula Partners, LLC and approved by the State Department of Land and Natural Resources, the United States Geological

Survey, and the United States Fish and Wildlife Service; and with a Cultural Resource Preservation Plan, which includes the management and maintenance of the Easement, developed by Honua`ula Partners, LLC and approved by the State Department of Land and Natural Resources (collectively, the "Conservation/Preservation Plans").

b. That Honua`ula Partners, LLC, its successors and permitted assigns, shall agree to confine use of the Easement to activities consistent with the purpose and intent of the Easement.

c. That Honua`ula Partners, LLC, its successors and permitted assigns, shall be prohibited from development in the Easement other than erecting fences, enhancing trails, and constructing structures for the maintenance needed for the area, in accordance with the Conservation/Preservation Plans.

d. That title to the Easement shall be held by Honua`ula Partners, LLC, its successors and permitted assigns, or conveyed to a land trust that holds other conservation easements. Access to the Easement shall be permitted pursuant to an established schedule specified in the Conservation/Preservation Plans to organizations on Maui dedicated to the preservation of native plants, to help restore and perpetuate native species and to engage in needed research activities. These organizations may enter the Easement at reasonable times for cultural and educational purposes only.

e. Honua`ula Partners, LLC, its successors and permitted assigns, shall be allowed to receive all tax benefits allowable under tax laws applicable to the Easement at the time that said Easement is established in Kihei-Makena Project District 9, which will be evidenced by the recordation of the Easement in the Bureau of Conveyances, State of Hawaii.

28. That, prior to the commencement of any construction activity, Honua`ula Partners, LLC, its successors and permitted assigns, shall develop and submit a Transportation Management Plan ("TMP"), to be reviewed and approved by the State Department of Transportation, the County Department of Public Works, and the County Department of Transportation. The purpose of the TMP shall be to reduce traffic generated by construction activity related to the Kaonoulu Light Industrial Subdivision and Kihei-Makena Project District 9, including traffic generated by the improvements to Piilani Highway between Kilohana Drive and Wailea Ike Drive. The TMP shall provide for programs such as park and ride, shuttles, and/or restrictions on worker access to ongoing construction activity during peak hour traffic. Upon approval, project contractors shall implement the TMP during construction activities. Honua`ula Partners, LLC, its successors and permitted assigns, shall submit an annual report to the State Department of Transportation, the County Department of Public Works, the County Department

of Transportation, and the Maui County Council to document the success of the TMP in meeting its benchmarks of reducing traffic during project construction.

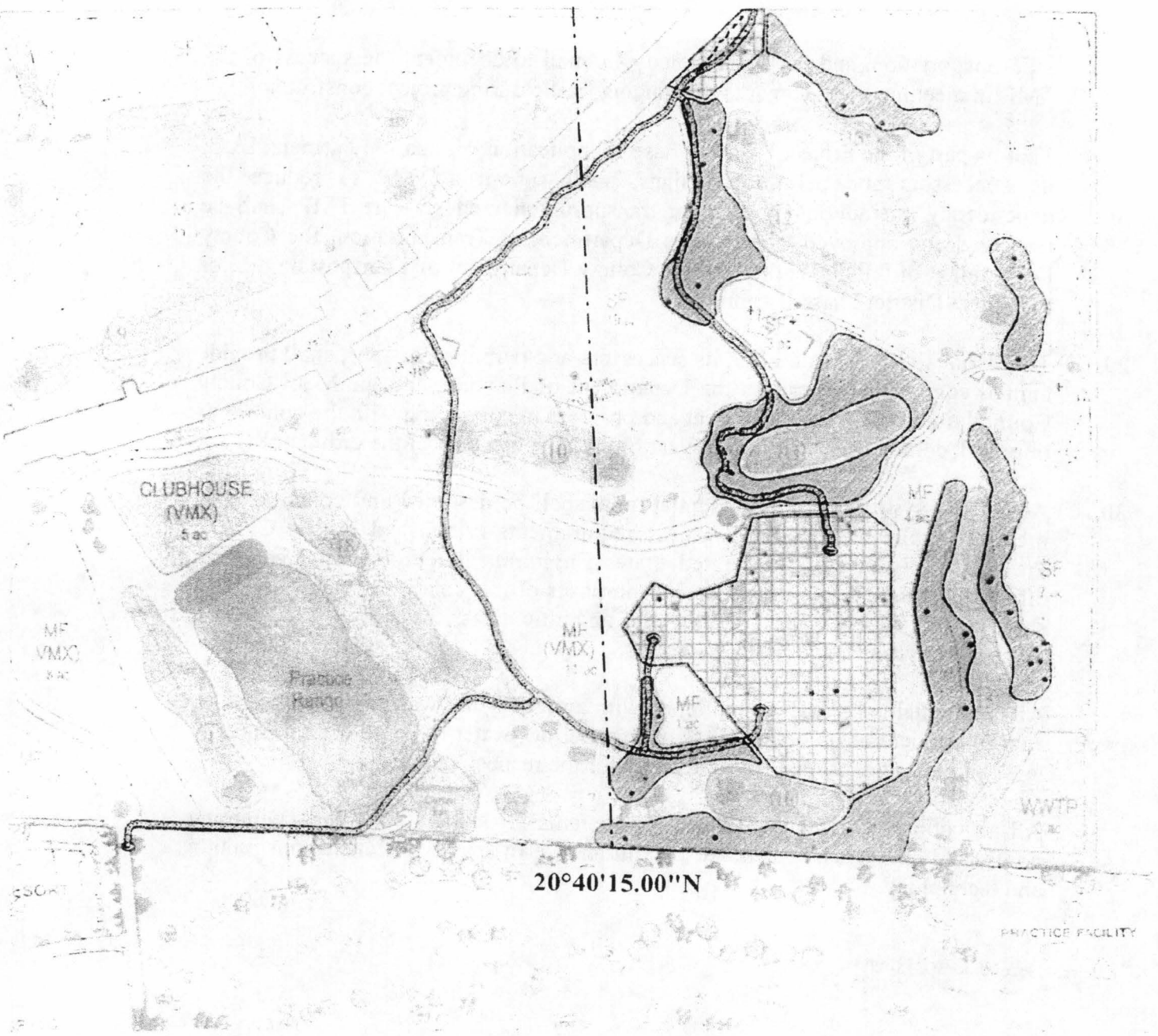
That as part of the Project District Phase II application, Honua`ula Partners, LLC, its successors and permitted assigns, shall submit a TMP to reduce the dependency on individual vehicular transportation modes. The TMP shall be reviewed and approved by the State Department of Transportation, the County Department of Public Works, and the County Department of Transportation prior to Project District Phase II approval.

29. That Honua`ula Partners, LLC, its successors and permitted assigns, shall provide annual compliance reports to the Department of Planning and the Maui County Council on the status of the project and progress in complying with the conditions imposed, commencing within one year of the effective date of the ordinance.

30. All energy systems for all residential units shall be designed and constructed to meet all applicable ENERGY STAR requirements established by the Climate Protection Division of the United States Environmental Protection Agency in effect at the time of construction. For purposes of this condition, energy systems shall include all hot water systems, roof and attic areas, outside walls, windows, air cooling systems, and heating systems.

All residential units shall be equipped with a primary hot water system at least as energy efficient as a conventional solar panel hot water system, sized to meet at least 80 percent of the hot water demand for the respective units.

All air cooling systems and all heating systems for laundry facilities, swimming pools, and spa areas shall make maximum use of energy-efficient construction and technology.



Legend

Existing Native Plants (Field Surveyed)

- Canavalia Pubescens ('awikiwiki)
- Erythrina Sandwicensis (wiliwili)
- Lipochaeta Rockii (nehe)

Archaeological Sites (To Be Preserved)

BOTANICAL HABITAT PRESERVES	Approx. Area (Acres)
Native Plant Preservation Area	+/- 18 ac
Native Plant Management / Enhancement Area	+/- 23 ac
Interpretive Trail (min. 4-foot wide cinder trail with interpretive signs)	+/- 2 ac
TOTAL :	+/- 43 ac

NOTE: All areas need to be field located and surveyed to establish appropriate boundaries that relate to the existing topographic and geological features with native plants located. Field adjustments for golf course, roadways and infrastructure will be necessary.

+/- Only 5 out of 96 native plants may not be preserved

BOTANICAL HABITAT PRESERVATION PLAN

AREA, SCALE (FEET)

400 200 0 200 600

ISLAND OF MAUI

PBR HAWAII

DIGEST

ORDINANCE NO._____
BILL NO. 22 (2008)

A BILL FOR AN ORDINANCE TO REPEAL ORDINANCE NO. 2171 (1992) AND TO ESTABLISH KIHEI-MAKENA PROJECT DISTRICT 9 (WAILEA 670) ZONING (CONDITIONAL ZONING), FOR APPROXIMATELY 670 ACRES SITUATED AT PAEAHU, PALAUEA, KEAUHOU, MAUI, HAWAII

This bill proposes to repeal Ordinance No. 2171 and to established Kihei Project District 9 (Wailea 670) zoning (conditional zoning) for property situated at Paeahu, Palauea, Keauhou, Maui, Hawaii, identified for real property tax purposes by Tax Map key Nos. (2) 2-1-008:056 and (2) 2-1-008:071, comprised of approximately 670 acres.

I, ROY T. HIRAGA, County Clerk of the County of Maui, State of Hawaii, DO HEREBY CERTIFY that the foregoing BILL NO. 22 (2008) was passed on First Reading at the February 8, 2008 meeting of the Council of the County of Maui, State of Hawaii, by the following vote:

AYES: Councilmembers Gladys C. Baisa, William J. Medeiros, Michael J. Molina, Joseph Pontanilla, Michael P. Victorino, and Vice-Chair Dennis A. Mateo.

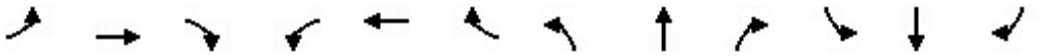
NOES: Councilmembers Michelle Anderson, Jo Anne Johnson, and Chair G. Riki Hokama.

DATED at Wailuku, Maui, Hawaii, this 29th day of February, 2008.

ROY T. HIRAGA, COUNTY CLERK
COUNTY OF MAUI, STATE OF HAWAII

Copies of the foregoing Bill, in full, are on file in the Office of the County Clerk, County of Maui, for use and examination by the public.

Appendix D
Analysis Reports Future Without Project Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	25	13	14	20	136	16	669	10	85	1118	158
Future Volume (veh/h)	94	25	13	14	20	136	16	669	10	85	1118	158
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	97	26	0	14	21	0	16	690	10	88	1153	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	272	178		133	124		35	1992	888	121	2162	
Arrive On Green	0.10	0.10	0.00	0.10	0.10	0.00	0.02	0.56	0.56	0.07	0.61	0.00
Sat Flow, veh/h	1391	1870	0	419	1305	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	97	26	0	35	0	0	16	690	10	88	1153	0
Grp Sat Flow(s),veh/h/ln	1391	1870	0	1723	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.5	0.7	0.0	0.0	0.0	0.0	0.5	5.7	0.2	2.6	10.2	0.0
Cycle Q Clear(g_c), s	3.4	0.7	0.0	0.9	0.0	0.0	0.5	5.7	0.2	2.6	10.2	0.0
Prop In Lane	1.00		0.00	0.40		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	272	178		257	0		35	1992	888	121	2162	
V/C Ratio(X)	0.36	0.15		0.14	0.00		0.45	0.35	0.01	0.73	0.53	
Avail Cap(c_a), veh/h	704	759		766	0		164	1992	888	296	2162	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	23.7	22.5	0.0	22.6	0.0	0.0	26.3	6.5	5.3	24.8	6.2	0.0
Incr Delay (d2), s/veh	0.8	0.4	0.0	0.2	0.0	0.0	8.9	0.5	0.0	8.2	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.3	0.0	0.4	0.0	0.0	0.3	1.6	0.0	1.3	2.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.4	22.9	0.0	22.9	0.0	0.0	35.2	7.0	5.3	33.0	7.1	0.0
LnGrp LOS	C	C		C	A		D	A	A	C	A	
Approach Vol, veh/h		123			35			716			1241	
Approach Delay, s/veh		24.1			22.9			7.6			8.9	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.7	35.4		10.2	6.1	38.0		10.2				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	9.0	29.0		22.0	5.0	33.0		22.0				
Max Q Clear Time (g_c+I1), s	4.6	7.7		5.4	2.5	12.2		2.9				
Green Ext Time (p_c), s	0.1	4.7		0.3	0.0	8.5		0.1				

Intersection Summary		
HCM 6th Ctrl Delay	9.6	
HCM 6th LOS	A	

Notes

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	34	13	39	25	44	11	574	34	46	1014	80
Future Volume (veh/h)	41	34	13	39	25	44	11	574	34	46	1014	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	35	0	40	26	0	11	586	0	47	1035	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	381	222		256	95		26	1436		93	1571	
Arrive On Green	0.12	0.12	0.00	0.12	0.12	0.00	0.01	0.40	0.00	0.05	0.44	0.00
Sat Flow, veh/h	1376	1870	0	778	804	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	42	35	0	66	0	0	11	586	0	47	1035	0
Grp Sat Flow(s),veh/h/ln	1376	1870	0	1582	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.0	0.6	0.0	0.6	0.0	0.0	0.2	4.2	0.0	0.9	8.1	0.0
Cycle Q Clear(g_c), s	0.8	0.6	0.0	1.2	0.0	0.0	0.2	4.2	0.0	0.9	8.1	0.0
Prop In Lane	1.00		0.00	0.61		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	381	222		352	0		26	1436		93	1571	
V/C Ratio(X)	0.11	0.16		0.19	0.00		0.43	0.41		0.50	0.66	
Avail Cap(c_a), veh/h	919	954		949	0		252	2214		252	2214	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	14.0	14.0	0.0	14.2	0.0	0.0	17.3	7.5	0.0	16.3	7.8	0.0
Incr Delay (d2), s/veh	0.1	0.3	0.0	0.3	0.0	0.0	10.8	0.2	0.0	4.2	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.2	0.0	0.4	0.0	0.0	0.1	1.0	0.0	0.4	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.2	14.3	0.0	14.5	0.0	0.0	28.0	7.7	0.0	20.5	8.2	0.0
LnGrp LOS	B	B		B	A		C	A		C	A	
Approach Vol, veh/h		77			66			597			1082	
Approach Delay, s/veh		14.2			14.5			8.1			8.8	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.8	19.3		9.2	5.5	20.6		9.2
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	5.8	22.0		18.0	5.0	22.0		18.0
Max Q Clear Time (g_c+I1), s	2.8	6.2		2.8	2.2	10.1		3.2
Green Ext Time (p_c), s	0.0	3.4		0.2	0.0	5.5		0.2

Intersection Summary	
HCM 6th Ctrl Delay	9.0
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	364	27	7	1	92	246	5	14	1	129	1	888
Future Volume (veh/h)	364	27	7	1	92	246	5	14	1	129	1	888
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	396	29	8	1	100	267	5	15	1	140	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	625	255	70	3	284	689	12	387	26	323	376	
Arrive On Green	0.18	0.18	0.18	0.15	0.15	0.15	0.01	0.11	0.11	0.09	0.20	0.00
Sat Flow, veh/h	3456	1411	389	19	1851	2790	1781	3384	223	3456	1870	1585
Grp Volume(v), veh/h	396	0	37	101	0	267	5	8	8	140	1	0
Grp Sat Flow(s),veh/h/ln	1728	0	1800	1869	0	1395	1781	1777	1830	1728	1870	1585
Q Serve(g_s), s	4.6	0.0	0.8	2.1	0.0	3.5	0.1	0.2	0.2	1.7	0.0	0.0
Cycle Q Clear(g_c), s	4.6	0.0	0.8	2.1	0.0	3.5	0.1	0.2	0.2	1.7	0.0	0.0
Prop In Lane	1.00		0.22	0.01		1.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	625	0	326	287	0	689	12	203	209	323	376	
V/C Ratio(X)	0.63	0.00	0.11	0.35	0.00	0.39	0.42	0.04	0.04	0.43	0.00	
Avail Cap(c_a), veh/h	1503	0	783	770	0	1410	204	732	754	395	771	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.6	0.0	15.0	16.5	0.0	13.7	21.6	17.2	17.2	18.7	13.9	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.2	0.7	0.0	0.4	21.4	0.1	0.1	0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.3	0.8	0.0	1.0	0.1	0.1	0.1	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.6	0.0	15.1	17.3	0.0	14.1	43.0	17.3	17.3	19.6	13.9	0.0
LnGrp LOS	B	A	B	B	A	B	D	B	B	B	B	
Approach Vol, veh/h		433			368			21			141	
Approach Delay, s/veh		17.4			14.9			23.4			19.6	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.1	10.0		12.9	5.3	13.8		11.7
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	5.0	18.0		19.0	5.0	18.0		18.0
Max Q Clear Time (g_c+I1), s	3.7	2.2		6.6	2.1	2.0		5.5
Green Ext Time (p_c), s	0.0	0.0		1.3	0.0	0.0		1.3

Intersection Summary	
HCM 6th Ctrl Delay	16.9
HCM 6th LOS	B

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	15.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	41	342	119	48	8	201	38	50	5	86	10
Future Vol, veh/h	5	41	342	119	48	8	201	38	50	5	86	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	45	372	129	52	9	218	41	54	5	93	11
Number of Lanes	1	1	1	0	1	1	1	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	3
HCM Control Delay	17.2	14.5	14.4	12
HCM LOS	C	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	71%	0%	5%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	29%	0%	95%	0%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	201	38	50	5	41	342	167	8	91	10
LT Vol	201	0	0	5	0	0	119	0	5	0
Through Vol	0	38	0	0	41	0	48	0	86	0
RT Vol	0	0	50	0	0	342	0	8	0	10
Lane Flow Rate	218	41	54	5	45	372	182	9	99	11
Geometry Grp	6	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.454	0.08	0.095	0.011	0.083	0.623	0.379	0.016	0.207	0.021
Departure Headway (Hd)	7.486	6.98	6.272	7.249	6.743	6.035	7.51	6.44	7.539	6.8
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	483	515	573	496	533	602	479	555	476	526
Service Time	5.207	4.701	3.993	4.965	4.46	3.752	5.252	4.182	5.287	4.548
HCM Lane V/C Ratio	0.451	0.08	0.094	0.01	0.084	0.618	0.38	0.016	0.208	0.021
HCM Control Delay	16.3	10.3	9.7	10	10.1	18.2	14.8	9.3	12.3	9.7
HCM Lane LOS	C	B	A	A	B	C	B	A	B	A
HCM 95th-tile Q	2.3	0.3	0.3	0	0.3	4.3	1.7	0	0.8	0.1



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	590	184	159	212	126	324
Future Volume (veh/h)	590	184	159	212	126	324
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	634	0	171	0	135	348
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	646		678		156	1821
Arrive On Green	0.36	0.00	0.36	0.00	0.09	0.51
Sat Flow, veh/h	1781	1585	1870	1585	1781	3647
Grp Volume(v), veh/h	634	0	171	0	135	348
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1777
Q Serve(g_s), s	28.2	0.0	5.1	0.0	6.0	4.2
Cycle Q Clear(g_c), s	28.2	0.0	5.1	0.0	6.0	4.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	646		678		156	1821
V/C Ratio(X)	0.98		0.25		0.87	0.19
Avail Cap(c_a), veh/h	646		678		156	1821
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	25.2	0.0	17.9	0.0	36.0	10.5
Incr Delay (d2), s/veh	30.7	0.0	0.9	0.0	36.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.6	0.0	2.3	0.0	4.1	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	56.0	0.0	18.8	0.0	72.7	10.8
LnGrp LOS	E		B		E	B
Approach Vol, veh/h	634		171			483
Approach Delay, s/veh	56.0		18.8			28.1
Approach LOS	E		B			C

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	12.0	34.0			46.0	34.0
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	7.0	29.0			41.0	29.0
Max Q Clear Time (g_c+I1), s	8.0	7.1			6.2	30.2
Green Ext Time (p_c), s	0.0	0.9			2.5	0.0

Intersection Summary	
HCM 6th Ctrl Delay	40.6
HCM 6th LOS	D

Notes

Unsignalized Delay for [NBR, WBR, SBT] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	12	11	74	46	45	12	175	43	54	357	121
Future Vol, veh/h	34	12	11	74	46	45	12	175	43	54	357	121
Conflicting Peds, #/hr	15	0	1	1	0	15	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Free	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	300	-	-	100	150	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	13	12	80	49	48	13	188	46	58	384	130

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	754	714	385	722	714	-	384	0	0	188	0	0
Stage 1	500	500	-	214	214	-	-	-	-	-	-	-
Stage 2	254	214	-	508	500	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	-	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	-	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	326	357	663	342	357	0	1174	-	-	1386	-	-
Stage 1	553	543	-	788	725	0	-	-	-	-	-	-
Stage 2	750	725	-	547	543	0	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	274	338	662	312	338	-	1174	-	-	1386	-	-
Mov Cap-2 Maneuver	274	338	-	312	338	-	-	-	-	-	-	-
Stage 1	546	520	-	778	716	-	-	-	-	-	-	-
Stage 2	679	716	-	501	520	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.7	23.6	0.4	0.8
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1174	-	-	323	321	-	1386	-	-
HCM Lane V/C Ratio	0.011	-	-	0.19	0.402	-	0.042	-	-
HCM Control Delay (s)	8.1	0	-	18.7	23.6	0	7.7	-	-
HCM Lane LOS	A	A	-	C	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.7	1.9	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	37	197	3	37	408
Future Vol, veh/h	1	37	197	3	37	408
Conflicting Peds, #/hr	1	0	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	39	210	3	39	434

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	726	213	0	0	213	0
Stage 1	213	-	-	-	-	-
Stage 2	513	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	391	827	-	-	1357	-
Stage 1	823	-	-	-	-	-
Stage 2	601	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	378	825	-	-	1353	-
Mov Cap-2 Maneuver	378	-	-	-	-	-
Stage 1	821	-	-	-	-	-
Stage 2	583	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	0.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	378	825	1353	-
HCM Lane V/C Ratio	-	-	0.003	0.048	0.029	-
HCM Control Delay (s)	-	-	14.6	9.6	7.7	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0.1	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	13	7	193	402	4
Future Vol, veh/h	4	13	7	193	402	4
Conflicting Peds, #/hr	0	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	14	8	210	437	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	666	441	442	0	-	0
Stage 1	440	-	-	-	-	-
Stage 2	226	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	425	616	1118	-	-	-
Stage 1	649	-	-	-	-	-
Stage 2	812	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	421	615	1117	-	-	-
Mov Cap-2 Maneuver	421	-	-	-	-	-
Stage 1	644	-	-	-	-	-
Stage 2	811	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.7	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1117	-	555	-	-
HCM Lane V/C Ratio	0.007	-	0.033	-	-
HCM Control Delay (s)	8.2	-	11.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	28	13	15	160	326	61
Future Vol, veh/h	28	13	15	160	326	61
Conflicting Peds, #/hr	0	0	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	14	16	167	340	64

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	576	377	409	0	-	0
Stage 1	377	-	-	-	-	-
Stage 2	199	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	479	670	1150	-	-	-
Stage 1	694	-	-	-	-	-
Stage 2	835	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	467	667	1145	-	-	-
Mov Cap-2 Maneuver	467	-	-	-	-	-
Stage 1	680	-	-	-	-	-
Stage 2	831	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.6	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1145	-	516	-	-
HCM Lane V/C Ratio	0.014	-	0.083	-	-
HCM Control Delay (s)	8.2	0	12.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	39	4	14	135	268	63
Future Vol, veh/h	39	4	14	135	268	63
Conflicting Peds, #/hr	0	0	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	5	16	157	312	73

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	545	356	392	0	-	0
Stage 1	356	-	-	-	-	-
Stage 2	189	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	499	688	1167	-	-	-
Stage 1	709	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	485	683	1159	-	-	-
Mov Cap-2 Maneuver	485	-	-	-	-	-
Stage 1	693	-	-	-	-	-
Stage 2	837	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1159	-	498	-	-
HCM Lane V/C Ratio	0.014	-	0.1	-	-
HCM Control Delay (s)	8.2	0	13	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	11	132	3	14	259
Future Vol, veh/h	6	11	132	3	14	259
Conflicting Peds, #/hr	1	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	13	155	4	16	305

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	497	159	0	0	161	0
Stage 1	159	-	-	-	-	-
Stage 2	338	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	532	886	-	-	1418	-
Stage 1	870	-	-	-	-	-
Stage 2	722	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	523	884	-	-	1415	-
Mov Cap-2 Maneuver	523	-	-	-	-	-
Stage 1	868	-	-	-	-	-
Stage 2	711	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	711	1415	-
HCM Lane V/C Ratio	-	-	0.028	0.012	-
HCM Control Delay (s)	-	-	10.2	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	8	85	9	22	208
Future Vol, veh/h	1	8	85	9	22	208
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	9	98	10	25	239

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	392	103	0	0	108	0
Stage 1	103	-	-	-	-	-
Stage 2	289	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	612	952	-	-	1483	-
Stage 1	921	-	-	-	-	-
Stage 2	760	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	600	952	-	-	1483	-
Mov Cap-2 Maneuver	600	-	-	-	-	-
Stage 1	921	-	-	-	-	-
Stage 2	746	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	894	1483	-
HCM Lane V/C Ratio	-	-	0.012	0.017	-
HCM Control Delay (s)	-	-	9.1	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0.1	-

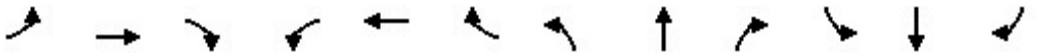
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	9	8	67	134	59
Future Vol, veh/h	15	9	8	67	134	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	11	10	83	165	73

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	305	202	238	0	-	0
Stage 1	202	-	-	-	-	-
Stage 2	103	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	687	839	1329	-	-	-
Stage 1	832	-	-	-	-	-
Stage 2	921	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	682	839	1329	-	-	-
Mov Cap-2 Maneuver	682	-	-	-	-	-
Stage 1	825	-	-	-	-	-
Stage 2	921	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1329	-	733	-	-
HCM Lane V/C Ratio	0.007	-	0.04	-	-
HCM Control Delay (s)	7.7	0	10.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	196	26	24	9	20	102	15	1376	15	111	1159	128
Future Volume (veh/h)	196	26	24	9	20	102	15	1376	15	111	1159	128
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	200	27	0	9	20	0	15	1404	15	113	1183	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	345	317		127	238		32	1895	844	144	2118	
Arrive On Green	0.17	0.17	0.00	0.17	0.17	0.00	0.02	0.53	0.53	0.08	0.60	0.00
Sat Flow, veh/h	1392	1870	0	348	1400	1585	1781	3554	1582	1781	3554	1585
Grp Volume(v), veh/h	200	27	0	29	0	0	15	1404	15	113	1183	0
Grp Sat Flow(s),veh/h/ln	1392	1870	0	1748	0	1585	1781	1777	1582	1781	1777	1585
Q Serve(g_s), s	8.5	0.8	0.0	0.0	0.0	0.0	0.6	21.1	0.3	4.3	14.0	0.0
Cycle Q Clear(g_c), s	9.4	0.8	0.0	0.9	0.0	0.0	0.6	21.1	0.3	4.3	14.0	0.0
Prop In Lane	1.00		0.00	0.31		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	345	317		365	0		32	1895	844	144	2118	
V/C Ratio(X)	0.58	0.09		0.08	0.00		0.47	0.74	0.02	0.79	0.56	
Avail Cap(c_a), veh/h	550	593		613	0		128	1895	844	154	2118	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.7	24.3	0.0	24.3	0.0	0.0	33.7	12.5	7.6	31.3	8.5	0.0
Incr Delay (d2), s/veh	1.5	0.1	0.0	0.1	0.0	0.0	10.1	2.7	0.0	21.8	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.4	0.0	0.4	0.0	0.0	0.3	7.5	0.1	2.6	4.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	24.4	0.0	24.4	0.0	0.0	43.8	15.1	7.7	53.0	9.6	0.0
LnGrp LOS	C	C		C	A		D	B	A	D	A	
Approach Vol, veh/h		227			29			1434			1296	
Approach Delay, s/veh		28.7			24.4			15.4			13.3	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.6	42.0		16.8	6.3	46.3		16.8				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	6.0	37.0		22.0	5.0	38.0		22.0				
Max Q Clear Time (g_c+I1), s	6.3	23.1		11.4	2.6	16.0		2.9				
Green Ext Time (p_c), s	0.0	8.3		0.5	0.0	9.0		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		15.6	
HCM 6th LOS		B	

Notes

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	23	36	32	16	50	18	1290	77	44	1065	69
Future Volume (veh/h)	85	23	36	32	16	50	18	1290	77	44	1065	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	89	24	0	34	17	0	19	1358	0	46	1121	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	312	184		220	72		42	1815		87	1905	
Arrive On Green	0.10	0.10	0.00	0.10	0.10	0.00	0.02	0.51	0.00	0.05	0.54	0.00
Sat Flow, veh/h	1396	1870	0	847	728	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	89	24	0	51	0	0	19	1358	0	46	1121	0
Grp Sat Flow(s),veh/h/ln	1396	1870	0	1575	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.1	0.5	0.0	0.5	0.0	0.0	0.5	13.3	0.0	1.1	9.4	0.0
Cycle Q Clear(g_c), s	2.3	0.5	0.0	1.2	0.0	0.0	0.5	13.3	0.0	1.1	9.4	0.0
Prop In Lane	1.00		0.00	0.67		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	312	184		292	0		42	1815		87	1905	
V/C Ratio(X)	0.29	0.13		0.17	0.00		0.45	0.75		0.53	0.59	
Avail Cap(c_a), veh/h	748	767		765	0		203	2187		203	2187	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.8	18.1	0.0	18.3	0.0	0.0	21.1	8.5	0.0	20.4	6.9	0.0
Incr Delay (d2), s/veh	0.5	0.3	0.0	0.3	0.0	0.0	7.4	1.2	0.0	4.9	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.2	0.0	0.4	0.0	0.0	0.3	3.4	0.0	0.5	2.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.3	18.4	0.0	18.6	0.0	0.0	28.6	9.7	0.0	25.2	7.2	0.0
LnGrp LOS	B	B		B	A		C	A		C	A	
Approach Vol, veh/h		113			51			1377			1167	
Approach Delay, s/veh		19.1			18.6			9.9			7.9	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.1	27.4		9.3	6.0	28.5		9.3
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	5.6	27.0		18.0	5.0	27.0		18.0
Max Q Clear Time (g_c+I1), s	3.1	15.3		4.3	2.5	11.4		3.2
Green Ext Time (p_c), s	0.0	7.1		0.2	0.0	7.1		0.1

Intersection Summary	
HCM 6th Ctrl Delay	9.6
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1043	85	17	1	42	237	17	105	1	335	1	737
Future Volume (veh/h)	1043	85	17	1	42	237	17	105	1	335	1	737
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1134	92	18	1	46	258	18	114	1	364	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1280	563	110	5	223	683	38	278	2	425	334	
Arrive On Green	0.37	0.37	0.37	0.12	0.12	0.12	0.02	0.08	0.08	0.12	0.18	0.00
Sat Flow, veh/h	3456	1520	297	40	1829	2790	1781	3610	32	3456	1870	1585
Grp Volume(v), veh/h	1134	0	110	47	0	258	18	56	59	364	1	0
Grp Sat Flow(s),veh/h/ln	1728	0	1817	1868	0	1395	1781	1777	1865	1728	1870	1585
Q Serve(g_s), s	20.0	0.0	2.6	1.5	0.0	5.0	0.6	2.0	2.0	6.7	0.0	0.0
Cycle Q Clear(g_c), s	20.0	0.0	2.6	1.5	0.0	5.0	0.6	2.0	2.0	6.7	0.0	0.0
Prop In Lane	1.00		0.16	0.02		1.00	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	1280	0	673	227	0	683	38	137	143	425	334	
V/C Ratio(X)	0.89	0.00	0.16	0.21	0.00	0.38	0.47	0.41	0.41	0.86	0.00	
Avail Cap(c_a), veh/h	1383	0	727	518	0	1116	137	492	517	425	605	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.2	0.0	13.7	25.7	0.0	20.4	31.4	28.6	28.6	27.9	21.9	0.0
Incr Delay (d2), s/veh	6.9	0.0	0.1	0.4	0.0	0.3	8.9	2.0	1.9	15.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	0.0	1.0	0.7	0.0	1.6	0.4	0.9	0.9	3.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.1	0.0	13.8	26.2	0.0	20.8	40.3	30.5	30.5	43.5	21.9	0.0
LnGrp LOS	C	A	B	C	A	C	D	C	C	D	C	
Approach Vol, veh/h		1244			305			133			365	
Approach Delay, s/veh		25.0			21.6			31.8			43.5	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.0	10.0		29.1	6.4	16.6		12.9
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	8.0	18.0		26.0	5.0	21.0		18.0
Max Q Clear Time (g_c+I1), s	8.7	4.0		22.0	2.6	2.0		7.0
Green Ext Time (p_c), s	0.0	0.4		2.1	0.0	0.0		0.9

Intersection Summary	
HCM 6th Ctrl Delay	28.2
HCM 6th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	26
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	34	343	105	34	9	331	141	136	6	55	7
Future Vol, veh/h	5	34	343	105	34	9	331	141	136	6	55	7
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	40	404	124	40	11	389	166	160	7	65	8
Number of Lanes	1	1	1	0	1	1	1	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	3
HCM Control Delay	29.6	17	27.3	13.3
HCM LOS	D	C	D	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	76%	0%	10%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	24%	0%	90%	0%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	331	141	136	5	34	343	139	9	61	7
LT Vol	331	0	0	5	0	0	105	0	6	0
Through Vol	0	141	0	0	34	0	34	0	55	0
RT Vol	0	0	136	0	0	343	0	9	0	7
Lane Flow Rate	389	166	160	6	40	404	164	11	72	8
Geometry Grp	6	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.838	0.334	0.29	0.014	0.086	0.791	0.4	0.023	0.177	0.019
Departure Headway (Hd)	7.748	7.242	6.532	8.271	7.763	7.053	8.798	7.698	8.867	8.099
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	467	496	549	432	461	512	409	463	403	440
Service Time	5.51	5.003	4.293	6.031	5.523	4.812	6.573	5.472	6.655	5.886
HCM Lane V/C Ratio	0.833	0.335	0.291	0.014	0.087	0.789	0.401	0.024	0.179	0.018
HCM Control Delay	39.4	13.6	12	11.1	11.3	31.7	17.4	10.7	13.6	11
HCM Lane LOS	E	B	B	B	B	D	C	B	B	B
HCM 95th-tile Q	8.2	1.5	1.2	0	0.3	7.3	1.9	0.1	0.6	0.1



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	470	218	331	725	216	281
Future Volume (veh/h)	470	218	331	725	216	281
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	566	0	399	0	260	339
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	593		627		294	1975
Arrive On Green	0.33	0.00	0.34	0.00	0.16	0.56
Sat Flow, veh/h	1781	1585	1870	1585	1781	3647
Grp Volume(v), veh/h	566	0	399	0	260	339
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1777
Q Serve(g_s), s	27.9	0.0	16.2	0.0	12.8	4.2
Cycle Q Clear(g_c), s	27.9	0.0	16.2	0.0	12.8	4.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	593		627		294	1975
V/C Ratio(X)	0.95		0.64		0.89	0.17
Avail Cap(c_a), veh/h	594		627		297	1975
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	29.3	0.0	25.3	0.0	36.7	9.8
Incr Delay (d2), s/veh	25.9	0.0	4.9	0.0	25.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.7	0.0	7.8	0.0	7.6	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	55.2	0.0	30.1	0.0	62.2	10.0
LnGrp LOS	E		C		E	A
Approach Vol, veh/h	566		399			599
Approach Delay, s/veh	55.2		30.1			32.7
Approach LOS	E		C			C

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	19.8	35.2			55.0	35.0
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	15.8	30.0			50.0	30.0
Max Q Clear Time (g_c+I1), s	14.8	18.2			6.2	29.9
Green Ext Time (p_c), s	0.0	1.9			2.5	0.0

Intersection Summary	
HCM 6th Ctrl Delay	40.2
HCM 6th LOS	D

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	29.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	102	56	14	106	47	54	12	532	109	43	363	65
Future Vol, veh/h	102	56	14	106	47	54	12	532	109	43	363	65
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Free	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	300	-	-	100	150	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	107	59	15	112	49	57	13	560	115	45	382	68

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1083	1058	382	1088	1058	-	382	0	0	560	0	0
Stage 1	472	472	-	586	586	-	-	-	-	-	-	-
Stage 2	611	586	-	502	472	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	-	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	-	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	195	225	665	193	225	0	1176	-	-	1011	-	-
Stage 1	573	559	-	496	497	0	-	-	-	-	-	-
Stage 2	481	497	-	552	559	0	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	152	211	665	141	211	-	1176	-	-	1011	-	-
Mov Cap-2 Maneuver	152	211	-	141	211	-	-	-	-	-	-	-
Stage 1	563	534	-	487	488	-	-	-	-	-	-	-
Stage 2	424	488	-	459	534	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	121.5	136.8	0.1	0.8
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1176	-	-	180	157	-	1011	-	-
HCM Lane V/C Ratio	0.011	-	-	1.006	1.026	-	0.045	-	-
HCM Control Delay (s)	8.1	0	-	121.5	136.8	0	8.7	-	-
HCM Lane LOS	A	A	-	F	F	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	8.3	8	-	0.1	-	-

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	41	607	5	59	426
Future Vol, veh/h	3	41	607	5	59	426
Conflicting Peds, #/hr	1	0	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	46	682	6	66	479

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1297	685	0	0	685	0
Stage 1	685	-	-	-	-	-
Stage 2	612	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	179	448	-	-	908	-
Stage 1	500	-	-	-	-	-
Stage 2	541	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	165	447	-	-	905	-
Mov Cap-2 Maneuver	165	-	-	-	-	-
Stage 1	499	-	-	-	-	-
Stage 2	501	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.9	0	1.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	165	447	905	-
HCM Lane V/C Ratio	-	-	0.02	0.103	0.073	-
HCM Control Delay (s)	-	-	27.3	14	9.3	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.3	0.2	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	15	10	603	422	5
Future Vol, veh/h	5	15	10	603	422	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	18	12	727	508	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1262	511	514	0	-	0
Stage 1	511	-	-	-	-	-
Stage 2	751	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	188	563	1052	-	-	-
Stage 1	602	-	-	-	-	-
Stage 2	466	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	186	563	1052	-	-	-
Mov Cap-2 Maneuver	186	-	-	-	-	-
Stage 1	595	-	-	-	-	-
Stage 2	466	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.3	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1052	-	374	-	-
HCM Lane V/C Ratio	0.011	-	0.064	-	-
HCM Control Delay (s)	8.5	-	15.3	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	21	14	501	359	46
Future Vol, veh/h	55	21	14	501	359	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	25	16	589	422	54

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1070	449	476	0	-	0
Stage 1	449	-	-	-	-	-
Stage 2	621	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	245	610	1086	-	-	-
Stage 1	643	-	-	-	-	-
Stage 2	536	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	240	610	1086	-	-	-
Mov Cap-2 Maneuver	240	-	-	-	-	-
Stage 1	629	-	-	-	-	-
Stage 2	536	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1086	-	288	-	-
HCM Lane V/C Ratio	0.015	-	0.31	-	-
HCM Control Delay (s)	8.4	0	23	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	1.3	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	84	6	6	423	287	91
Future Vol, veh/h	84	6	6	423	287	91
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	99	7	7	498	338	107

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	904	392	445	0	-	0
Stage 1	392	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	307	657	1115	-	-	-
Stage 1	683	-	-	-	-	-
Stage 2	602	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	304	657	1115	-	-	-
Mov Cap-2 Maneuver	304	-	-	-	-	-
Stage 1	677	-	-	-	-	-
Stage 2	602	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.1	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1115	-	315	-	-
HCM Lane V/C Ratio	0.006	-	0.336	-	-
HCM Control Delay (s)	8.2	0	22.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	1.4	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	36	390	9	3	292
Future Vol, veh/h	10	36	390	9	3	292
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	44	476	11	4	356

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	847	483	0	0	488	0
Stage 1	483	-	-	-	-	-
Stage 2	364	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	332	584	-	-	1075	-
Stage 1	620	-	-	-	-	-
Stage 2	703	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	330	583	-	-	1074	-
Mov Cap-2 Maneuver	330	-	-	-	-	-
Stage 1	619	-	-	-	-	-
Stage 2	699	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	500	1074	-
HCM Lane V/C Ratio	-	-	0.112	0.003	-
HCM Control Delay (s)	-	-	13.1	8.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	23	312	27	3	244
Future Vol, veh/h	1	23	312	27	3	244
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	29	390	34	4	305

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	720	407	0	0	424	0
Stage 1	407	-	-	-	-	-
Stage 2	313	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	395	644	-	-	1135	-
Stage 1	672	-	-	-	-	-
Stage 2	741	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	393	644	-	-	1135	-
Mov Cap-2 Maneuver	393	-	-	-	-	-
Stage 1	672	-	-	-	-	-
Stage 2	738	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	627	1135	-
HCM Lane V/C Ratio	-	-	0.048	0.003	-
HCM Control Delay (s)	-	-	11	8.2	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	68	10	8	226	215	33
Future Vol, veh/h	68	10	8	226	215	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	85	13	10	283	269	41

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	593	290	310	0	-	0
Stage 1	290	-	-	-	-	-
Stage 2	303	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	468	749	1250	-	-	-
Stage 1	759	-	-	-	-	-
Stage 2	749	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	464	749	1250	-	-	-
Mov Cap-2 Maneuver	464	-	-	-	-	-
Stage 1	752	-	-	-	-	-
Stage 2	749	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.2	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1250	-	488	-	-
HCM Lane V/C Ratio	0.008	-	0.2	-	-
HCM Control Delay (s)	7.9	0	14.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-



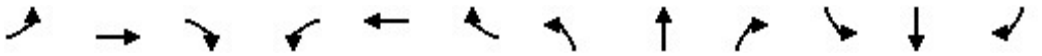
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	590	184	159	212	126	324
Future Volume (veh/h)	590	184	159	212	126	324
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	634	0	171	0	135	348
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	772		948		171	2348
Arrive On Green	0.22	0.00	0.51	0.00	0.10	0.66
Sat Flow, veh/h	3456	1585	1870	2790	1781	3647
Grp Volume(v), veh/h	634	0	171	0	135	348
Grp Sat Flow(s),veh/h/ln	1728	1585	1870	1395	1781	1777
Q Serve(g_s), s	15.1	0.0	4.3	0.0	6.4	3.2
Cycle Q Clear(g_c), s	15.1	0.0	4.3	0.0	6.4	3.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	772		948		171	2348
V/C Ratio(X)	0.82		0.18		0.79	0.15
Avail Cap(c_a), veh/h	1322		948		392	2348
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	0.0	11.5	0.0	38.1	5.5
Incr Delay (d2), s/veh	2.3	0.0	0.4	0.0	7.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	0.0	1.8	0.0	3.1	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.1	0.0	12.0	0.0	46.0	5.6
LnGrp LOS	C		B		D	A
Approach Vol, veh/h	634		171			483
Approach Delay, s/veh	34.1		12.0			16.9
Approach LOS	C		B			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	13.3	48.7			62.0	24.3
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	19.0	33.0			57.0	33.0
Max Q Clear Time (g_c+I1), s	8.4	6.3			5.2	17.1
Green Ext Time (p_c), s	0.2	0.9			2.6	2.2

Intersection Summary	
HCM 6th Ctrl Delay	24.7
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR, SBT] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	12	11	74	46	45	12	175	43	54	357	121
Future Volume (veh/h)	34	12	11	74	46	45	12	175	43	54	357	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		1.00	0.97		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	13	0	80	49	0	13	188	0	58	384	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	473	125		419	162		183	635		785	664	
Arrive On Green	0.21	0.21	0.00	0.21	0.21	0.00	0.36	0.36	0.00	0.36	0.36	0.00
Sat Flow, veh/h	958	602	0	788	782	1585	44	1788	1585	1195	1870	1585
Grp Volume(v), veh/h	50	0	0	129	0	0	201	0	0	58	384	0
Grp Sat Flow(s),veh/h/ln	1560	0	0	1570	0	1585	1832	0	1585	1195	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.0
Cycle Q Clear(g_c), s	0.5	0.0	0.0	1.5	0.0	0.0	1.8	0.0	0.0	0.5	3.8	0.0
Prop In Lane	0.74		0.00	0.62		1.00	0.06		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	598	0		581	0		818	0		785	664	
V/C Ratio(X)	0.08	0.00		0.22	0.00		0.25	0.00		0.07	0.58	
Avail Cap(c_a), veh/h	1433	0		1458	0		1893	0		1510	1799	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.4	0.0	0.0	7.7	0.0	0.0	5.3	0.0	0.0	4.9	6.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.4	0.0	0.0	0.3	0.0	0.0	0.1	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.4	0.0	0.0	7.9	0.0	0.0	5.5	0.0	0.0	5.0	6.8	0.0
LnGrp LOS	A	A		A	A		A	A		A	A	
Approach Vol, veh/h		50			129			201			442	
Approach Delay, s/veh		7.4			7.9			5.5			6.5	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		13.1		9.7		13.1		9.7				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		22.0		18.0		22.0		18.0				
Max Q Clear Time (g_c+I1), s		3.8		2.5		5.8		3.5				
Green Ext Time (p_c), s		1.0		0.1		2.3		0.5				

Intersection Summary	
HCM 6th Ctrl Delay	6.6
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



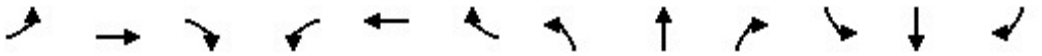
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	472	218	332	726	216	282
Future Volume (veh/h)	472	218	332	726	216	282
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	569	0	400	0	260	340
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	685		875		302	2459
Arrive On Green	0.20	0.00	0.47	0.00	0.17	0.69
Sat Flow, veh/h	3456	1585	1870	2790	1781	3647
Grp Volume(v), veh/h	569	0	400	0	260	340
Grp Sat Flow(s),veh/h/ln	1728	1585	1870	1395	1781	1777
Q Serve(g_s), s	14.4	0.0	13.2	0.0	12.9	3.0
Cycle Q Clear(g_c), s	14.4	0.0	13.2	0.0	12.9	3.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	685		875		302	2459
V/C Ratio(X)	0.83		0.46		0.86	0.14
Avail Cap(c_a), veh/h	1025		875		470	2459
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	0.0	16.4	0.0	36.8	4.8
Incr Delay (d2), s/veh	3.7	0.0	1.7	0.0	9.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	0.0	5.8	0.0	6.3	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	38.8	0.0	18.1	0.0	46.5	4.9
LnGrp LOS	D		B		D	A
Approach Vol, veh/h	569		400			600
Approach Delay, s/veh	38.8		18.1			22.9
Approach LOS	D		B			C

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	20.4	47.6			68.0	23.0
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	24.0	34.0			63.0	27.0
Max Q Clear Time (g_c+I1), s	14.9	15.2			5.0	16.4
Green Ext Time (p_c), s	0.5	2.3			2.5	1.7

Intersection Summary	
HCM 6th Ctrl Delay	27.4
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



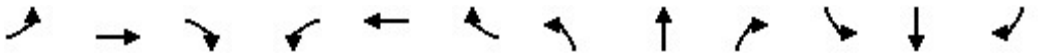
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	56	14	106	47	55	12	533	110	44	365	65
Future Volume (veh/h)	102	56	14	106	47	55	12	533	110	44	365	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	107	59	0	112	49	0	13	561	0	46	384	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	402	110		424	92		146	822		703	833	
Arrive On Green	0.17	0.17	0.00	0.17	0.17	0.00	0.45	0.45	0.00	0.45	0.45	0.00
Sat Flow, veh/h	1016	633	0	1103	531	1585	13	1845	1585	849	1870	1585
Grp Volume(v), veh/h	166	0	0	161	0	0	574	0	0	46	384	0
Grp Sat Flow(s),veh/h/ln	1649	0	0	1635	0	1585	1859	0	1585	849	1870	1585
Q Serve(g_s), s	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.0
Cycle Q Clear(g_c), s	2.2	0.0	0.0	2.1	0.0	0.0	6.4	0.0	0.0	0.7	3.8	0.0
Prop In Lane	0.64		0.00	0.70		1.00	0.02		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	512	0		516	0		968	0		703	833	
V/C Ratio(X)	0.32	0.00		0.31	0.00		0.59	0.00		0.07	0.46	
Avail Cap(c_a), veh/h	1284	0		1271	0		1691	0		1038	1570	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	9.9	0.0	0.0	9.8	0.0	0.0	5.8	0.0	0.0	4.2	5.1	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.3	0.0	0.0	0.6	0.0	0.0	0.0	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	0.6	0.0	0.0	1.1	0.0	0.0	0.1	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.2	0.0	0.0	10.2	0.0	0.0	6.4	0.0	0.0	4.3	5.5	0.0
LnGrp LOS	B	A		B	A		A	A		A	A	
Approach Vol, veh/h		166			161			574			430	
Approach Delay, s/veh		10.2			10.2			6.4			5.3	
Approach LOS		B			B			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.7		9.5		16.7		9.5				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		22.0		18.0		22.0		18.0				
Max Q Clear Time (g_c+I1), s		8.4		4.2		5.8		4.1				
Green Ext Time (p_c), s		3.2		0.7		2.4		0.7				

Intersection Summary												
HCM 6th Ctrl Delay			7.0									
HCM 6th LOS			A									

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	25	13	15	20	136	22	938	11	85	1319	179
Future Volume (veh/h)	122	25	13	15	20	136	22	938	11	85	1319	179
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	126	26	0	15	21	0	23	967	11	88	1360	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	299	221		143	150		48	1948	869	118	2089	
Arrive On Green	0.12	0.12	0.00	0.12	0.12	0.00	0.03	0.55	0.55	0.07	0.59	0.00
Sat Flow, veh/h	1391	1870	0	441	1275	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	126	26	0	36	0	0	23	967	11	88	1360	0
Grp Sat Flow(s),veh/h/ln	1391	1870	0	1716	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.7	0.7	0.0	0.0	0.0	0.0	0.7	9.5	0.2	2.7	14.3	0.0
Cycle Q Clear(g_c), s	4.6	0.7	0.0	1.0	0.0	0.0	0.7	9.5	0.2	2.7	14.3	0.0
Prop In Lane	1.00		0.00	0.42		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	299	221		293	0		48	1948	869	118	2089	
V/C Ratio(X)	0.42	0.12		0.12	0.00		0.48	0.50	0.01	0.74	0.65	
Avail Cap(c_a), veh/h	680	733		740	0		159	1948	869	286	2089	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	23.8	22.1	0.0	22.3	0.0	0.0	26.9	7.9	5.8	25.7	7.7	0.0
Incr Delay (d2), s/veh	0.9	0.2	0.0	0.2	0.0	0.0	7.3	0.9	0.0	8.8	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.3	0.0	0.4	0.0	0.0	0.4	2.9	0.0	1.3	4.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.7	22.4	0.0	22.4	0.0	0.0	34.2	8.8	5.8	34.5	9.3	0.0
LnGrp LOS	C	C		C	A		C	A	A	C	A	
Approach Vol, veh/h		152			36			1001			1448	
Approach Delay, s/veh		24.3			22.4			9.3			10.8	
Approach LOS		C			C			A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.7	35.8		11.6	6.5	38.0		11.6				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	9.0	29.0		22.0	5.0	33.0		22.0				
Max Q Clear Time (g_c+I1), s	4.7	11.5		6.6	2.7	16.3		3.0				
Green Ext Time (p_c), s	0.1	6.4		0.4	0.0	9.1		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		11.2
HCM 6th LOS		B

Notes

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	34	29	42	25	44	25	807	47	46	1181	105
Future Volume (veh/h)	73	34	29	42	25	44	25	807	47	46	1181	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	35	0	43	26	0	26	823	0	47	1205	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	365	226		244	97		56	1578		91	1648	
Arrive On Green	0.12	0.12	0.00	0.12	0.12	0.00	0.03	0.44	0.00	0.05	0.46	0.00
Sat Flow, veh/h	1376	1870	0	779	802	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	74	35	0	69	0	0	26	823	0	47	1205	0
Grp Sat Flow(s),veh/h/ln	1376	1870	0	1581	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.1	0.7	0.0	0.6	0.0	0.0	0.6	6.5	0.0	1.0	10.7	0.0
Cycle Q Clear(g_c), s	1.5	0.7	0.0	1.4	0.0	0.0	0.6	6.5	0.0	1.0	10.7	0.0
Prop In Lane	1.00		0.00	0.62		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	365	226		341	0		56	1578		91	1648	
V/C Ratio(X)	0.20	0.15		0.20	0.00		0.46	0.52		0.52	0.73	
Avail Cap(c_a), veh/h	833	862		857	0		228	2001		228	2001	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.8	15.4	0.0	15.7	0.0	0.0	18.6	7.9	0.0	18.1	8.5	0.0
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.3	0.0	0.0	5.9	0.3	0.0	4.5	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.2	0.0	0.5	0.0	0.0	0.3	1.6	0.0	0.5	2.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.0	15.7	0.0	16.0	0.0	0.0	24.5	8.1	0.0	22.5	9.6	0.0
LnGrp LOS	B	B		B	A		C	A		C	A	
Approach Vol, veh/h		109			69			849			1252	
Approach Delay, s/veh		15.9			16.0			8.6			10.1	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.0	22.3		9.7	6.2	23.1		9.7
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	5.0	22.0		18.0	5.0	22.0		18.0
Max Q Clear Time (g_c+I1), s	3.0	8.5		3.5	2.6	12.7		3.4
Green Ext Time (p_c), s	0.0	4.6		0.3	0.0	5.4		0.2

Intersection Summary	
HCM 6th Ctrl Delay	10.0
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	457	28	10	1	96	300	13	129	1	147	32	1025
Future Volume (veh/h)	457	28	10	1	96	300	13	129	1	147	32	1025
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	497	30	11	1	104	326	14	140	1	160	35	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	742	280	103	3	315	731	32	378	3	318	335	
Arrive On Green	0.21	0.21	0.21	0.17	0.17	0.17	0.02	0.10	0.10	0.09	0.18	0.00
Sat Flow, veh/h	3456	1306	479	18	1852	2790	1781	3617	26	3456	1870	1585
Grp Volume(v), veh/h	497	0	41	105	0	326	14	69	72	160	35	0
Grp Sat Flow(s),veh/h/ln	1728	0	1784	1869	0	1395	1781	1777	1866	1728	1870	1585
Q Serve(g_s), s	6.3	0.0	0.9	2.4	0.0	4.7	0.4	1.7	1.7	2.1	0.7	0.0
Cycle Q Clear(g_c), s	6.3	0.0	0.9	2.4	0.0	4.7	0.4	1.7	1.7	2.1	0.7	0.0
Prop In Lane	1.00		0.27	0.01		1.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	742	0	383	318	0	731	32	186	195	318	335	
V/C Ratio(X)	0.67	0.00	0.11	0.33	0.00	0.45	0.44	0.37	0.37	0.50	0.10	
Avail Cap(c_a), veh/h	2097	0	1083	704	0	1308	186	669	703	362	705	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.2	0.0	15.1	17.4	0.0	14.7	23.2	19.9	19.9	20.6	16.4	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.1	0.6	0.0	0.4	9.4	1.2	1.2	1.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.3	1.0	0.0	1.3	0.2	0.7	0.7	0.8	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.3	0.0	15.2	18.0	0.0	15.2	32.7	21.1	21.1	21.9	16.5	0.0
LnGrp LOS	B	A	B	B	A	B	C	C	C	C	B	
Approach Vol, veh/h		538			431			155			195	
Approach Delay, s/veh		18.0			15.9			22.2			20.9	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.4	10.0		15.3	5.8	13.6		13.1
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	5.6	18.0		29.0	5.0	18.0		18.0
Max Q Clear Time (g_c+I1), s	4.1	3.7		8.3	2.4	2.7		6.7
Green Ext Time (p_c), s	0.0	0.5		2.0	0.0	0.1		1.5

Intersection Summary	
HCM 6th Ctrl Delay	18.2
HCM 6th LOS	B

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	20.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	56	365	145	67	8	253	44	72	5	90	10
Future Vol, veh/h	5	56	365	145	67	8	253	44	72	5	90	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	61	397	158	73	9	275	48	78	5	98	11
Number of Lanes	1	1	1	0	1	1	1	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	3
HCM Control Delay	23.5	19.1	18.9	13.4
HCM LOS	C	C	C	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	68%	0%	5%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	32%	0%	95%	0%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	253	44	72	5	56	365	212	8	95	10
LT Vol	253	0	0	5	0	0	145	0	5	0
Through Vol	0	44	0	0	56	0	67	0	90	0
RT Vol	0	0	72	0	0	365	0	8	0	10
Lane Flow Rate	275	48	78	5	61	397	230	9	103	11
Geometry Grp	6	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.611	0.099	0.147	0.012	0.124	0.733	0.519	0.017	0.239	0.023
Departure Headway (Hd)	7.997	7.488	6.777	7.869	7.361	6.65	8.109	7.049	8.337	7.594
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	451	477	527	454	486	544	445	506	430	469
Service Time	5.76	5.252	4.539	5.627	5.119	4.407	5.876	4.815	6.115	5.371
HCM Lane V/C Ratio	0.61	0.101	0.148	0.011	0.126	0.73	0.517	0.018	0.24	0.023
HCM Control Delay	22.6	11.1	10.7	10.7	11.2	25.6	19.4	9.9	13.7	10.6
HCM Lane LOS	C	B	B	B	B	D	C	A	B	B
HCM 95th-tile Q	4	0.3	0.5	0	0.4	6.1	2.9	0.1	0.9	0.1



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	668	219	193	257	139	354
Future Volume (veh/h)	668	219	193	257	139	354
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	718	0	208	0	149	381
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	854		898		186	2277
Arrive On Green	0.25	0.00	0.48	0.00	0.10	0.64
Sat Flow, veh/h	3456	1585	1870	2790	1781	3647
Grp Volume(v), veh/h	718	0	208	0	149	381
Grp Sat Flow(s),veh/h/ln	1728	1585	1870	1395	1781	1777
Q Serve(g_s), s	17.6	0.0	5.8	0.0	7.3	3.8
Cycle Q Clear(g_c), s	17.6	0.0	5.8	0.0	7.3	3.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	854		898		186	2277
V/C Ratio(X)	0.84		0.23		0.80	0.17
Avail Cap(c_a), veh/h	1282		898		360	2277
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	31.8	0.0	13.5	0.0	39.0	6.4
Incr Delay (d2), s/veh	3.3	0.0	0.6	0.0	7.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	0.0	2.5	0.0	3.5	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.2	0.0	14.1	0.0	46.8	6.6
LnGrp LOS	D		B		D	A
Approach Vol, veh/h	718		208			530
Approach Delay, s/veh	35.2		14.1			17.9
Approach LOS	D		B			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	14.3	47.7			62.0	27.0
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	18.6	34.0			57.0	33.0
Max Q Clear Time (g_c+I1), s	19.3	7.8			5.8	19.6
Green Ext Time (p_c), s	0.2	1.2			2.8	2.4

Intersection Summary	
HCM 6th Ctrl Delay	25.9
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR, SBT] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	16	11	108	84	67	13	227	60	73	429	121
Future Volume (veh/h)	34	16	11	108	84	67	13	227	60	73	429	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.97		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	17	0	116	90	0	14	244	0	78	461	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	449	164		391	202		156	691		771	717	
Arrive On Green	0.24	0.24	0.00	0.24	0.24	0.00	0.38	0.38	0.00	0.38	0.38	0.00
Sat Flow, veh/h	920	686	0	746	841	1585	34	1802	1585	1136	1870	1585
Grp Volume(v), veh/h	54	0	0	206	0	0	258	0	0	78	461	0
Grp Sat Flow(s),veh/h/ln	1606	0	0	1587	0	1585	1836	0	1585	1136	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4	0.0
Cycle Q Clear(g_c), s	0.6	0.0	0.0	2.9	0.0	0.0	2.6	0.0	0.0	0.7	5.4	0.0
Prop In Lane	0.69		0.00	0.56		1.00	0.05		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	614	0		592	0		847	0		771	717	
V/C Ratio(X)	0.09	0.00		0.35	0.00		0.30	0.00		0.10	0.64	
Avail Cap(c_a), veh/h	1241	0		1269	0		1638	0		1277	1551	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.9	0.0	0.0	8.7	0.0	0.0	5.9	0.0	0.0	5.3	6.7	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.0	0.1	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.7	0.0	0.0	0.5	0.0	0.0	0.1	1.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.0	0.0	0.0	9.1	0.0	0.0	6.1	0.0	0.0	5.3	7.7	0.0
LnGrp LOS	A	A		A	A		A	A		A	A	
Approach Vol, veh/h		54			206			258			539	
Approach Delay, s/veh		8.0			9.1			6.1			7.3	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	15.2	11.4	15.2	11.4
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	22.0	18.0	22.0	18.0
Max Q Clear Time (g_c+I1), s	4.6	2.6	7.4	4.9
Green Ext Time (p_c), s	1.4	0.2	2.8	0.9

Intersection Summary	
HCM 6th Ctrl Delay	7.4
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	63	243	3	57	499
Future Vol, veh/h	1	63	243	3	57	499
Conflicting Peds, #/hr	1	0	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	67	259	3	61	531

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	916	262	0	0	262	0
Stage 1	262	-	-	-	-	-
Stage 2	654	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	302	777	-	-	1302	-
Stage 1	782	-	-	-	-	-
Stage 2	517	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	287	775	-	-	1298	-
Mov Cap-2 Maneuver	287	-	-	-	-	-
Stage 1	780	-	-	-	-	-
Stage 2	492	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	287	775	1298	-
HCM Lane V/C Ratio	-	-	0.004	0.086	0.047	-
HCM Control Delay (s)	-	-	17.6	10.1	7.9	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0.3	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	13	7	237	491	5
Future Vol, veh/h	5	13	7	237	491	5
Conflicting Peds, #/hr	0	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	14	8	258	534	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	812	539	540	0	-	0
Stage 1	538	-	-	-	-	-
Stage 2	274	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	348	542	1028	-	-	-
Stage 1	585	-	-	-	-	-
Stage 2	772	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	345	541	1027	-	-	-
Mov Cap-2 Maneuver	345	-	-	-	-	-
Stage 1	580	-	-	-	-	-
Stage 2	771	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1027	-	467	-	-
HCM Lane V/C Ratio	0.007	-	0.042	-	-
HCM Control Delay (s)	8.5	-	13	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	37	13	15	192	395	74
Future Vol, veh/h	37	13	15	192	395	74
Conflicting Peds, #/hr	0	0	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	14	16	200	411	77

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	687	455	493	0	-	0
Stage 1	455	-	-	-	-	-
Stage 2	232	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	413	605	1071	-	-	-
Stage 1	639	-	-	-	-	-
Stage 2	807	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	402	602	1066	-	-	-
Mov Cap-2 Maneuver	402	-	-	-	-	-
Stage 1	625	-	-	-	-	-
Stage 2	803	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.3	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1066	-	440	-	-
HCM Lane V/C Ratio	0.015	-	0.118	-	-
HCM Control Delay (s)	8.4	0	14.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	39	4	14	166	336	64
Future Vol, veh/h	39	4	14	166	336	64
Conflicting Peds, #/hr	0	0	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	5	16	193	391	74

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	660	435	472	0	-	0
Stage 1	435	-	-	-	-	-
Stage 2	225	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	428	621	1090	-	-	-
Stage 1	653	-	-	-	-	-
Stage 2	812	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	415	617	1083	-	-	-
Mov Cap-2 Maneuver	415	-	-	-	-	-
Stage 1	637	-	-	-	-	-
Stage 2	806	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.5	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1083	-	428	-	-
HCM Lane V/C Ratio	0.015	-	0.117	-	-
HCM Control Delay (s)	8.4	0	14.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	14	159	3	17	324
Future Vol, veh/h	6	14	159	3	17	324
Conflicting Peds, #/hr	1	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	16	187	4	20	381

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	613	191	0	0	193	0
Stage 1	191	-	-	-	-	-
Stage 2	422	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	456	851	-	-	1380	-
Stage 1	841	-	-	-	-	-
Stage 2	662	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	446	849	-	-	1377	-
Mov Cap-2 Maneuver	446	-	-	-	-	-
Stage 1	839	-	-	-	-	-
Stage 2	649	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	668	1377	-
HCM Lane V/C Ratio	-	-	0.035	0.015	-
HCM Control Delay (s)	-	-	10.6	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	11	110	9	27	264
Future Vol, veh/h	1	11	110	9	27	264
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	13	126	10	31	303

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	496	131	0	0	136	0
Stage 1	131	-	-	-	-	-
Stage 2	365	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	533	919	-	-	1448	-
Stage 1	895	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	519	919	-	-	1448	-
Mov Cap-2 Maneuver	519	-	-	-	-	-
Stage 1	895	-	-	-	-	-
Stage 2	684	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	0.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	864	1448	-
HCM Lane V/C Ratio	-	-	0.016	0.021	-
HCM Control Delay (s)	-	-	9.2	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0.1	-

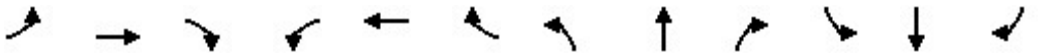
Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	9	8	90	174	70
Future Vol, veh/h	16	9	8	90	174	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	11	10	111	215	86

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	389	258	301	0	-	0
Stage 1	258	-	-	-	-	-
Stage 2	131	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	615	781	1260	-	-	-
Stage 1	785	-	-	-	-	-
Stage 2	895	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	610	781	1260	-	-	-
Mov Cap-2 Maneuver	610	-	-	-	-	-
Stage 1	779	-	-	-	-	-
Stage 2	895	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.7	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1260	-	662	-	-
HCM Lane V/C Ratio	0.008	-	0.047	-	-
HCM Control Delay (s)	7.9	0	10.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	26	29	11	20	102	17	1654	16	111	1485	160
Future Volume (veh/h)	223	26	29	11	20	102	17	1654	16	111	1485	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	228	27	0	11	20	0	17	1688	16	113	1515	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	348	345		142	231		35	2004	892	128	2190	
Arrive On Green	0.18	0.18	0.00	0.18	0.18	0.00	0.02	0.56	0.56	0.07	0.62	0.00
Sat Flow, veh/h	1392	1870	0	455	1255	1585	1781	3554	1582	1781	3554	1585
Grp Volume(v), veh/h	228	27	0	31	0	0	17	1688	16	113	1515	0
Grp Sat Flow(s),veh/h/ln	1392	1870	0	1710	0	1585	1781	1777	1582	1781	1777	1585
Q Serve(g_s), s	11.8	1.0	0.0	0.0	0.0	0.0	0.8	32.9	0.4	5.2	23.8	0.0
Cycle Q Clear(g_c), s	12.9	1.0	0.0	1.1	0.0	0.0	0.8	32.9	0.4	5.2	23.8	0.0
Prop In Lane	1.00		0.00	0.35		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	348	345		374	0		35	2004	892	128	2190	
V/C Ratio(X)	0.65	0.08		0.08	0.00		0.49	0.84	0.02	0.88	0.69	
Avail Cap(c_a), veh/h	459	494		506	0		107	2004	892	128	2190	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.9	28.1	0.0	28.2	0.0	0.0	40.5	15.1	8.0	38.3	10.7	0.0
Incr Delay (d2), s/veh	2.1	0.1	0.0	0.1	0.0	0.0	10.2	4.5	0.0	45.7	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.4	0.0	0.5	0.0	0.0	0.4	12.5	0.1	3.8	8.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.0	28.2	0.0	28.3	0.0	0.0	50.7	19.6	8.0	84.0	12.5	0.0
LnGrp LOS	C	C		C	A		D	B	A	F	B	
Approach Vol, veh/h		255			31			1721			1628	
Approach Delay, s/veh		34.3			28.3			19.8			17.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	52.0		20.4	6.6	56.4		20.4				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	6.0	47.0		22.0	5.0	48.0		22.0				
Max Q Clear Time (g_c+I1), s	7.2	34.9		14.9	2.8	25.8		3.1				
Green Ext Time (p_c), s	0.0	8.8		0.4	0.0	12.2		0.1				

Intersection Summary		
HCM 6th Ctrl Delay	19.9	
HCM 6th LOS	B	

Notes

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	23	59	40	16	50	40	1528	85	44	1349	106
Future Volume (veh/h)	118	23	59	40	16	50	40	1528	85	44	1349	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	24	0	42	17	0	42	1608	0	46	1420	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	310	214		224	71		78	1965		83	1976	
Arrive On Green	0.11	0.11	0.00	0.11	0.11	0.00	0.04	0.55	0.00	0.05	0.56	0.00
Sat Flow, veh/h	1396	1870	0	927	621	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	124	24	0	59	0	0	42	1608	0	46	1420	0
Grp Sat Flow(s),veh/h/ln	1396	1870	0	1548	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.3	0.6	0.0	0.9	0.0	0.0	1.2	19.4	0.0	1.3	15.5	0.0
Cycle Q Clear(g_c), s	4.0	0.6	0.0	1.7	0.0	0.0	1.2	19.4	0.0	1.3	15.5	0.0
Prop In Lane	1.00		0.00	0.71		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	310	214		295	0		78	1965		83	1976	
V/C Ratio(X)	0.40	0.11		0.20	0.00		0.54	0.82		0.55	0.72	
Avail Cap(c_a), veh/h	629	642		637	0		170	2167		170	2167	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.2	20.8	0.0	21.3	0.0	0.0	24.6	9.6	0.0	24.5	8.6	0.0
Incr Delay (d2), s/veh	0.8	0.2	0.0	0.3	0.0	0.0	5.7	2.4	0.0	5.7	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.3	0.0	0.6	0.0	0.0	0.6	5.7	0.0	0.6	4.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.1	21.1	0.0	21.6	0.0	0.0	30.3	12.0	0.0	30.2	9.7	0.0
LnGrp LOS	C	C		C	A		C	B		C	A	
Approach Vol, veh/h		148			59			1650			1466	
Approach Delay, s/veh		22.7			21.6			12.4			10.3	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.4	34.0		11.0	7.3	34.2		11.0
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	5.6	32.0		18.0	5.0	32.0		18.0
Max Q Clear Time (g_c+I1), s	3.3	21.4		6.0	3.2	17.5		3.7
Green Ext Time (p_c), s	0.0	7.6		0.3	0.0	8.6		0.2

Intersection Summary	
HCM 6th Ctrl Delay	12.1
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1222	89	25	1	45	270	21	169	1	391	110	891
Future Volume (veh/h)	1222	89	25	1	45	270	21	169	1	391	110	891
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1328	97	27	1	49	293	23	184	1	425	120	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1474	600	167	4	220	737	44	290	2	498	374	
Arrive On Green	0.43	0.43	0.43	0.12	0.12	0.12	0.02	0.08	0.08	0.14	0.20	0.00
Sat Flow, veh/h	3456	1408	392	37	1831	2790	1781	3624	20	3456	1870	1585
Grp Volume(v), veh/h	1328	0	124	50	0	293	23	90	95	425	120	0
Grp Sat Flow(s),veh/h/ln	1728	0	1800	1868	0	1395	1781	1777	1867	1728	1870	1585
Q Serve(g_s), s	31.2	0.0	3.7	2.1	0.0	7.5	1.1	4.3	4.3	10.5	4.8	0.0
Cycle Q Clear(g_c), s	31.2	0.0	3.7	2.1	0.0	7.5	1.1	4.3	4.3	10.5	4.8	0.0
Prop In Lane	1.00		0.22	0.02		1.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	1474	0	768	224	0	737	44	142	149	498	374	
V/C Ratio(X)	0.90	0.00	0.16	0.22	0.00	0.40	0.53	0.63	0.63	0.85	0.32	
Avail Cap(c_a), veh/h	1625	0	846	386	0	978	102	367	385	515	558	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	23.3	0.0	15.4	34.7	0.0	26.4	42.0	38.9	38.9	36.4	29.8	0.0
Incr Delay (d2), s/veh	6.9	0.0	0.1	0.5	0.0	0.3	9.5	4.6	4.4	12.8	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.0	0.0	1.5	1.0	0.0	2.5	0.6	2.0	2.1	5.2	2.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.2	0.0	15.5	35.2	0.0	26.7	51.5	43.5	43.3	49.2	30.3	0.0
LnGrp LOS	C	A	B	D	A	C	D	D	D	D	C	
Approach Vol, veh/h		1452			343			208			545	
Approach Delay, s/veh		28.9			28.0			44.3			45.0	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.6	12.0		42.2	7.1	22.4		15.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	13.6	18.0		41.0	5.0	26.0		18.0				
Max Q Clear Time (g_c+I1), s	12.5	6.3		33.2	3.1	6.8		9.5				
Green Ext Time (p_c), s	0.1	0.7		4.0	0.0	0.5		0.9				

Intersection Summary	
HCM 6th Ctrl Delay	33.5
HCM 6th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	49.9
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	56	393	134	54	9	369	149	169	6	60	7
Future Vol, veh/h	5	56	393	134	54	9	369	149	169	6	60	7
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	66	462	158	64	11	434	175	199	7	71	8
Number of Lanes	1	1	1	0	1	1	1	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	3
HCM Control Delay	62.1	24.9	52.6	15.4
HCM LOS	F	C	F	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	71%	0%	9%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	29%	0%	91%	0%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	369	149	169	5	56	393	188	9	66	7
LT Vol	369	0	0	5	0	0	134	0	6	0
Through Vol	0	149	0	0	56	0	54	0	60	0
RT Vol	0	0	169	0	0	393	0	9	0	7
Lane Flow Rate	434	175	199	6	66	462	221	11	78	8
Geometry Grp	6	6	6	6	6	6	6	6	6	6
Degree of Util (X)	1.04	0.395	0.409	0.015	0.155	0.998	0.589	0.025	0.216	0.021
Departure Headway (Hd)	8.625	8.114	7.399	9.124	8.613	7.897	9.742	8.657	10.215	9.442
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	425	447	489	395	419	462	374	416	353	381
Service Time	6.325	5.814	5.099	6.824	6.313	5.597	7.442	6.357	7.915	7.142
HCM Lane V/C Ratio	1.021	0.391	0.407	0.015	0.158	1	0.591	0.026	0.221	0.021
HCM Control Delay	84.5	16	15.1	12	12.9	69.7	25.5	11.6	15.7	12.3
HCM Lane LOS	F	C	C	B	B	F	D	B	C	B
HCM 95th-tile Q	13.8	1.9	2	0	0.5	13	3.6	0.1	0.8	0.1



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	548	245	370	828	249	320
Future Volume (veh/h)	548	245	370	828	249	320
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	660	0	446	0	300	386
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	769		798		340	2384
Arrive On Green	0.22	0.00	0.43	0.00	0.19	0.67
Sat Flow, veh/h	3456	1585	1870	2790	1781	3647
Grp Volume(v), veh/h	660	0	446	0	300	386
Grp Sat Flow(s),veh/h/ln	1728	1585	1870	1395	1781	1777
Q Serve(g_s), s	17.2	0.0	16.9	0.0	15.4	3.8
Cycle Q Clear(g_c), s	17.2	0.0	16.9	0.0	15.4	3.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	769		798		340	2384
V/C Ratio(X)	0.86		0.56		0.88	0.16
Avail Cap(c_a), veh/h	994		798		474	2384
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	35.1	0.0	20.3	0.0	37.0	5.7
Incr Delay (d2), s/veh	6.1	0.0	2.8	0.0	13.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	0.0	7.7	0.0	7.8	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.2	0.0	23.1	0.0	50.3	5.9
LnGrp LOS	D		C		D	A
Approach Vol, veh/h	660		446			686
Approach Delay, s/veh	41.2		23.1			25.3
Approach LOS	D		C			C

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	32.9	45.1			68.0	25.9
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	25.9	33.0			63.0	27.0
Max Q Clear Time (g_c+I1), s	17.4	18.9			5.8	19.2
Green Ext Time (p_c), s	0.6	2.4			2.9	1.7

Intersection Summary	
HCM 6th Ctrl Delay	30.6
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	81	28	142	47	76	13	630	155	70	440	65
Future Volume (veh/h)	102	81	28	142	47	76	13	630	155	70	440	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	107	85	0	149	49	0	14	663	0	74	463	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	338	161		429	77		123	908		607	919	
Arrive On Green	0.19	0.19	0.00	0.19	0.19	0.00	0.49	0.49	0.00	0.49	0.49	0.00
Sat Flow, veh/h	843	856	0	1205	407	1585	12	1847	1585	772	1870	1585
Grp Volume(v), veh/h	192	0	0	198	0	0	677	0	0	74	463	0
Grp Sat Flow(s),veh/h/ln	1698	0	0	1613	0	1585	1859	0	1585	772	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	5.2	0.0
Cycle Q Clear(g_c), s	3.0	0.0	0.0	3.2	0.0	0.0	9.0	0.0	0.0	1.7	5.2	0.0
Prop In Lane	0.56		0.00	0.75		1.00	0.02		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	499	0		505	0		1031	0		607	919	
V/C Ratio(X)	0.38	0.00		0.39	0.00		0.66	0.00		0.12	0.50	
Avail Cap(c_a), veh/h	1099	0		1056	0		1716	0		895	1618	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	11.5	0.0	0.0	11.6	0.0	0.0	6.3	0.0	0.0	4.5	5.4	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.5	0.0	0.0	0.7	0.0	0.0	0.1	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	1.0	0.0	0.0	1.8	0.0	0.0	0.1	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.0	0.0	0.0	12.1	0.0	0.0	7.0	0.0	0.0	4.6	5.8	0.0
LnGrp LOS	B	A		B	A		A	A		A	A	
Approach Vol, veh/h		192			198			677			537	
Approach Delay, s/veh		12.0			12.1			7.0			5.6	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	20.3	10.9	20.3	10.9
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	27.0	18.0	27.0	18.0
Max Q Clear Time (g_c+I1), s	11.0	5.0	7.2	5.2
Green Ext Time (p_c), s	4.3	0.8	3.4	0.9

Intersection Summary	
HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	67	729	5	94	519
Future Vol, veh/h	3	67	729	5	94	519
Conflicting Peds, #/hr	1	0	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	75	819	6	106	583

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1618	822	0	0	822	0
Stage 1	822	-	-	-	-	-
Stage 2	796	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	114	374	-	-	807	-
Stage 1	432	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	99	373	-	-	805	-
Mov Cap-2 Maneuver	99	-	-	-	-	-
Stage 1	431	-	-	-	-	-
Stage 2	385	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.2	0	1.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	99	373	805	-
HCM Lane V/C Ratio	-	-	0.034	0.202	0.131	-
HCM Control Delay (s)	-	-	42.6	17.1	10.1	-
HCM Lane LOS	-	-	E	C	B	-
HCM 95th %tile Q(veh)	-	-	0.1	0.7	0.5	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	15	10	724	514	7
Future Vol, veh/h	6	15	10	724	514	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	18	12	872	619	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1519	623	627	0	-	0
Stage 1	623	-	-	-	-	-
Stage 2	896	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	131	486	955	-	-	-
Stage 1	535	-	-	-	-	-
Stage 2	399	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	129	486	955	-	-	-
Mov Cap-2 Maneuver	129	-	-	-	-	-
Stage 1	528	-	-	-	-	-
Stage 2	399	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.6	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	955	-	271	-	-
HCM Lane V/C Ratio	0.013	-	0.093	-	-
HCM Control Delay (s)	8.8	-	19.6	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	66	21	14	602	432	58
Future Vol, veh/h	66	21	14	602	432	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	78	25	16	708	508	68

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1282	542	576	0	-	0
Stage 1	542	-	-	-	-	-
Stage 2	740	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	182	540	997	-	-	-
Stage 1	583	-	-	-	-	-
Stage 2	472	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	177	540	997	-	-	-
Mov Cap-2 Maneuver	177	-	-	-	-	-
Stage 1	568	-	-	-	-	-
Stage 2	472	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	37.2	0.2	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	997	-	211	-	-
HCM Lane V/C Ratio	0.017	-	0.485	-	-
HCM Control Delay (s)	8.7	0	37.2	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.1	-	2.4	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	85	6	6	523	362	91
Future Vol, veh/h	85	6	6	523	362	91
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	100	7	7	615	426	107

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1109	480	533	0	-	0
Stage 1	480	-	-	-	-	-
Stage 2	629	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	232	586	1035	-	-	-
Stage 1	622	-	-	-	-	-
Stage 2	531	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	230	586	1035	-	-	-
Mov Cap-2 Maneuver	230	-	-	-	-	-
Stage 1	616	-	-	-	-	-
Stage 2	531	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	31.5	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1035	-	240	-	-
HCM Lane V/C Ratio	0.007	-	0.446	-	-
HCM Control Delay (s)	8.5	0	31.5	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0	-	2.1	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	43	481	9	3	366
Future Vol, veh/h	10	43	481	9	3	366
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	52	587	11	4	446

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1048	594	0	0	599	0
Stage 1	594	-	-	-	-	-
Stage 2	454	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	252	505	-	-	978	-
Stage 1	552	-	-	-	-	-
Stage 2	640	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	250	505	-	-	977	-
Mov Cap-2 Maneuver	250	-	-	-	-	-
Stage 1	551	-	-	-	-	-
Stage 2	637	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	423	977	-
HCM Lane V/C Ratio	-	-	0.153	0.004	-
HCM Control Delay (s)	-	-	15	8.7	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	27	392	27	3	315
Future Vol, veh/h	1	27	392	27	3	315
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	34	490	34	4	394

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	909	507	0	0	524	0
Stage 1	507	-	-	-	-	-
Stage 2	402	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	305	566	-	-	1043	-
Stage 1	605	-	-	-	-	-
Stage 2	676	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	303	566	-	-	1043	-
Mov Cap-2 Maneuver	303	-	-	-	-	-
Stage 1	605	-	-	-	-	-
Stage 2	673	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	549	1043	-
HCM Lane V/C Ratio	-	-	0.064	0.004	-
HCM Control Delay (s)	-	-	12	8.5	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	80	10	8	288	280	38
Future Vol, veh/h	80	10	8	288	280	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	100	13	10	360	350	48

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	754	374	398	0	-	0
Stage 1	374	-	-	-	-	-
Stage 2	380	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	377	672	1161	-	-	-
Stage 1	696	-	-	-	-	-
Stage 2	691	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	373	672	1161	-	-	-
Mov Cap-2 Maneuver	373	-	-	-	-	-
Stage 1	688	-	-	-	-	-
Stage 2	691	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.8	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1161	-	392	-	-
HCM Lane V/C Ratio	0.009	-	0.287	-	-
HCM Control Delay (s)	8.1	0	17.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	1.2	-	-

Intersection	
Int Delay, s/veh	34.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	56	365	145	67	8	253	44	72	5	90	10
Future Vol, veh/h	5	56	365	145	67	8	253	44	72	5	90	10
Conflicting Peds, #/hr	27	0	1	1	0	27	70	0	0	0	0	70
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	Yield	-	-	Yield	-	-	Stop
Storage Length	0	-	0	-	-	300	300	-	0	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	61	397	158	73	9	275	48	78	5	98	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	840	776	-	738	776	75	168	0	0	48	0	0
Stage 1	178	178	-	598	598	-	-	-	-	-	-	-
Stage 2	662	598	-	140	178	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	-	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	285	328	0	334	328	986	1410	-	-	1559	-	-
Stage 1	824	752	0	489	491	-	-	-	-	-	-	-
Stage 2	451	491	0	863	752	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	166	241	-	227	241	961	1316	-	-	1559	-	-
Mov Cap-2 Maneuver	166	241	-	227	241	-	-	-	-	-	-	-
Stage 1	608	699	-	387	388	-	-	-	-	-	-	-
Stage 2	280	388	-	785	699	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	25.1	100.2	5.8	0.3
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1316	-	-	166	241	-	231	961	1559	-	-
HCM Lane V/C Ratio	0.209	-	-	0.033	0.253	-	0.998	0.009	0.003	-	-
HCM Control Delay (s)	8.5	-	-	27.4	24.9	0	103.7	8.8	7.3	0	-
HCM Lane LOS	A	-	-	D	C	A	F	A	A	A	-
HCM 95th %tile Q(veh)	0.8	-	-	0.1	1	-	9.3	0	0	-	-

Intersection	
Int Delay, s/veh	30.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	56	365	145	67	8	253	44	72	5	90	10
Future Vol, veh/h	5	56	365	145	67	8	253	44	72	5	90	10
Conflicting Peds, #/hr	27	0	1	1	0	27	70	0	0	0	0	70
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Yield	-	-	Yield	-	-	Stop
Storage Length	0	-	0	-	-	300	300	-	0	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	61	397	158	73	9	275	48	78	5	98	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	100	0	-	62	0	0	580	488	62	511	488	170
Stage 1	-	-	-	-	-	-	72	72	-	416	416	-
Stage 2	-	-	-	-	-	-	508	416	-	95	72	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1493	-	0	1541	-	-	426	480	1003	473	480	874
Stage 1	-	-	0	-	-	-	938	835	-	614	592	-
Stage 2	-	-	0	-	-	-	547	592	-	912	835	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1455	-	-	1540	-	-	294	415	1002	355	415	795
Mov Cap-2 Maneuver	-	-	-	-	-	-	294	415	-	355	415	-
Stage 1	-	-	-	-	-	-	934	832	-	596	514	-
Stage 2	-	-	-	-	-	-	364	514	-	790	832	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	5	55.6	16
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	294	415	1002	1455	-	1540	-	-	411	795
HCM Lane V/C Ratio	0.935	0.115	0.078	0.004	-	0.102	-	-	0.251	0.014
HCM Control Delay (s)	76	14.8	8.9	7.5	-	7.6	0	-	16.7	9.6
HCM Lane LOS	F	B	A	A	-	A	A	-	C	A
HCM 95th %tile Q(veh)	9	0.4	0.3	0	-	0.3	-	-	1	0

Intersection	
Intersection Delay, s/veh	6.9
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	463	240	401	114
Demand Flow Rate, veh/h	472	244	409	116
Vehicles Circulating, veh/h	266	334	72	515
Vehicles Exiting, veh/h	365	147	666	63
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.5	6.2	5.8	5.9
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	472	244	409	116
Cap Entry Lane, veh/h	1052	982	1282	816
Entry HV Adj Factor	0.980	0.982	0.981	0.983
Flow Entry, veh/h	463	240	401	114
Cap Entry, veh/h	1031	964	1257	802
V/C Ratio	0.449	0.249	0.319	0.142
Control Delay, s/veh	8.5	6.2	5.8	5.9
LOS	A	A	A	A
95th %tile Queue, veh	2	1	1	0

Intersection	
Int Delay, s/veh	129.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	56	393	134	54	9	369	149	169	6	60	7
Future Vol, veh/h	5	56	393	134	54	9	369	149	169	6	60	7
Conflicting Peds, #/hr	1	0	1	1	0	1	7	0	0	0	0	7
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	Yield	-	-	Yield	-	-	Stop
Storage Length	0	-	0	-	-	300	300	-	0	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	66	462	158	64	11	434	175	199	7	71	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1168	1135	-	1162	1135	176	78	0	0	175	0	0
Stage 1	92	92	-	1043	1043	-	-	-	-	-	-	-
Stage 2	1076	1043	-	119	92	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	-	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	170	202	0	172	202	867	1520	-	-	1401	-	-
Stage 1	915	819	0	277	306	-	-	-	-	-	-	-
Stage 2	266	306	0	885	819	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	86	142	-	~ 87	142	866	1510	-	-	1401	-	-
Mov Cap-2 Maneuver	86	142	-	~ 87	142	-	-	-	-	-	-	-
Stage 1	648	809	-	198	218	-	-	-	-	-	-	-
Stage 2	133	218	-	808	809	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	50.5	$ 636.9	4.5	0.6
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1510	-	-	86	142	-	98	866	1401	-	-
HCM Lane V/C Ratio	0.287	-	-	0.068	0.464	-	2.257	0.012	0.005	-	-
HCM Control Delay (s)	8.3	-	-	49.9	50.6	0	$ 667	9.2	7.6	0	-
HCM Lane LOS	A	-	-	E	F	A	F	A	A	A	-
HCM 95th %tile Q(veh)	1.2	-	-	0.2	2.1	-	19.6	0	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	51.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	56	393	134	54	9	369	149	169	6	60	7
Future Vol, veh/h	5	56	393	134	54	9	369	149	169	6	60	7
Conflicting Peds, #/hr	1	0	1	1	0	1	7	0	0	0	0	7
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Yield	-	-	Yield	-	-	Stop
Storage Length	0	-	0	-	-	300	300	-	0	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	66	462	158	64	11	434	175	199	7	71	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	65	0	-	67	0	0	502	460	67	547	460	72
Stage 1	-	-	-	-	-	-	79	79	-	381	381	-
Stage 2	-	-	-	-	-	-	423	381	-	166	79	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1537	-	0	1535	-	-	480	498	997	448	498	990
Stage 1	-	-	0	-	-	-	930	829	-	641	613	-
Stage 2	-	-	0	-	-	-	609	613	-	836	829	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1536	-	-	1534	-	-	~ 380	442	996	228	442	982
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 380	442	-	228	442	-
Stage 1	-	-	-	-	-	-	925	825	-	638	546	-
Stage 2	-	-	-	-	-	-	466	546	-	525	825	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	5.2	72.6	15.2
HCM LOS			F	C

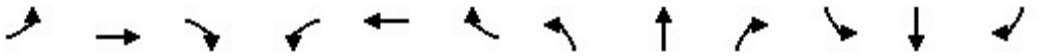
Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	380	442	996	1536	-	1534	-	-	407	982
HCM Lane V/C Ratio	1.142	0.397	0.2	0.004	-	0.103	-	-	0.191	0.008
HCM Control Delay (s)	123.3	18.4	9.5	7.4	-	7.6	0	-	15.9	8.7
HCM Lane LOS	F	C	A	A	-	A	A	-	C	A
HCM 95th %tile Q(veh)	16.6	1.9	0.7	0	-	0.3	-	-	0.7	0

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	534	233	808	86
Demand Flow Rate, veh/h	544	237	824	87
Vehicles Circulating, veh/h	240	627	80	669
Vehicles Exiting, veh/h	516	277	704	195
Ped Vol Crossing Leg, #/h	7	0	1	1
Ped Cap Adj	0.999	1.000	1.000	1.000
Approach Delay, s/veh	9.3	9.1	11.3	6.6
Approach LOS	A	A	B	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	544	237	824	87
Cap Entry Lane, veh/h	1080	728	1272	697
Entry HV Adj Factor	0.981	0.982	0.980	0.984
Flow Entry, veh/h	534	233	808	86
Cap Entry, veh/h	1059	715	1246	686
V/C Ratio	0.504	0.326	0.648	0.125
Control Delay, s/veh	9.3	9.1	11.3	6.6
LOS	A	A	B	A
95th %tile Queue, veh	3	1	5	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	25	14	15	20	136	22	1006	11	85	1443	179
Future Volume (veh/h)	122	25	14	15	20	136	22	1006	11	85	1443	179
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	126	26	0	15	21	0	23	1037	11	88	1488	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	295	220		141	149		48	1977	882	117	2115	
Arrive On Green	0.12	0.12	0.00	0.12	0.12	0.00	0.03	0.56	0.56	0.07	0.60	0.00
Sat Flow, veh/h	1391	1870	0	444	1271	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	126	26	0	36	0	0	23	1037	11	88	1488	0
Grp Sat Flow(s),veh/h/ln	1391	1870	0	1715	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.8	0.7	0.0	0.0	0.0	0.0	0.7	10.5	0.2	2.8	16.8	0.0
Cycle Q Clear(g_c), s	4.8	0.7	0.0	1.0	0.0	0.0	0.7	10.5	0.2	2.8	16.8	0.0
Prop In Lane	1.00		0.00	0.42		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	295	220		290	0		48	1977	882	117	2115	
V/C Ratio(X)	0.43	0.12		0.12	0.00		0.48	0.52	0.01	0.75	0.70	
Avail Cap(c_a), veh/h	664	715		722	0		155	1977	882	186	2115	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.4	22.7	0.0	22.8	0.0	0.0	27.6	8.0	5.7	26.4	8.1	0.0
Incr Delay (d2), s/veh	1.0	0.2	0.0	0.2	0.0	0.0	7.4	1.0	0.0	9.4	2.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.3	0.0	0.4	0.0	0.0	0.4	3.2	0.1	1.4	4.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.4	23.0	0.0	23.0	0.0	0.0	35.0	9.0	5.7	35.8	10.1	0.0
LnGrp LOS	C	C		C	A		D	A	A	D	B	
Approach Vol, veh/h		152			36			1071			1576	
Approach Delay, s/veh		25.0			23.0			9.5			11.5	
Approach LOS		C			C			A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.8	37.0		11.8	6.5	39.2		11.8				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	6.0	32.0		22.0	5.0	33.0		22.0				
Max Q Clear Time (g_c+I1), s	4.8	12.5		6.8	2.7	18.8		3.0				
Green Ext Time (p_c), s	0.0	7.3		0.4	0.0	8.9		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		11.6
HCM 6th LOS		B

Notes

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	34	30	43	25	44	25	863	48	46	1293	105
Future Volume (veh/h)	73	34	30	43	25	44	25	863	48	46	1293	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	35	0	44	26	0	26	881	0	47	1319	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	356	222		239	93		56	1635		90	1704	
Arrive On Green	0.12	0.12	0.00	0.12	0.12	0.00	0.03	0.46	0.00	0.05	0.48	0.00
Sat Flow, veh/h	1376	1870	0	791	786	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	74	35	0	70	0	0	26	881	0	47	1319	0
Grp Sat Flow(s),veh/h/ln	1376	1870	0	1577	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.0	0.7	0.0	0.7	0.0	0.0	0.6	7.2	0.0	1.0	12.4	0.0
Cycle Q Clear(g_c), s	1.6	0.7	0.0	1.5	0.0	0.0	0.6	7.2	0.0	1.0	12.4	0.0
Prop In Lane	1.00		0.00	0.63		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	356	222		332	0		56	1635		90	1704	
V/C Ratio(X)	0.21	0.16		0.21	0.00		0.47	0.54		0.52	0.77	
Avail Cap(c_a), veh/h	805	832		827	0		220	1933		220	1933	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.4	16.0	0.0	16.4	0.0	0.0	19.3	7.8	0.0	18.7	8.7	0.0
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.3	0.0	0.0	5.9	0.3	0.0	4.6	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.3	0.0	0.5	0.0	0.0	0.3	1.8	0.0	0.5	3.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.7	16.3	0.0	16.7	0.0	0.0	25.2	8.1	0.0	23.3	10.5	0.0
LnGrp LOS	B	B		B	A		C	A		C	B	
Approach Vol, veh/h		109			70			907			1366	
Approach Delay, s/veh		16.6			16.7			8.6			10.9	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.1	23.6		9.8	6.3	24.4		9.8
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	5.6	22.0		18.0	5.0	22.0		18.0
Max Q Clear Time (g_c+I1), s	3.0	9.2		3.6	2.6	14.4		3.5
Green Ext Time (p_c), s	0.0	4.9		0.3	0.0	5.0		0.2

Intersection Summary	
HCM 6th Ctrl Delay	10.5
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	519	28	10	1	96	300	13	129	1	147	32	1142
Future Volume (veh/h)	519	28	10	1	96	300	13	129	1	147	32	1142
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	564	30	11	1	104	326	14	140	1	160	35	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	819	309	113	3	311	719	32	366	3	311	324	
Arrive On Green	0.24	0.24	0.24	0.17	0.17	0.17	0.02	0.10	0.10	0.09	0.17	0.00
Sat Flow, veh/h	3456	1306	479	18	1852	2790	1781	3617	26	3456	1870	1585
Grp Volume(v), veh/h	564	0	41	105	0	326	14	69	72	160	35	0
Grp Sat Flow(s),veh/h/ln	1728	0	1784	1869	0	1395	1781	1777	1866	1728	1870	1585
Q Serve(g_s), s	7.4	0.0	0.9	2.4	0.0	4.9	0.4	1.8	1.8	2.2	0.8	0.0
Cycle Q Clear(g_c), s	7.4	0.0	0.9	2.4	0.0	4.9	0.4	1.8	1.8	2.2	0.8	0.0
Prop In Lane	1.00		0.27	0.01		1.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	819	0	423	314	0	719	32	180	189	311	324	
V/C Ratio(X)	0.69	0.00	0.10	0.33	0.00	0.45	0.44	0.38	0.38	0.52	0.11	
Avail Cap(c_a), veh/h	2725	0	1407	680	0	1266	180	647	679	349	681	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.2	0.0	14.7	18.1	0.0	15.4	24.1	20.8	20.8	21.5	17.2	0.0
Incr Delay (d2), s/veh	1.0	0.0	0.1	0.6	0.0	0.4	9.5	1.3	1.3	1.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	0.3	1.0	0.0	1.4	0.2	0.7	0.8	0.8	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.3	0.0	14.8	18.8	0.0	15.9	33.6	22.1	22.1	22.8	17.4	0.0
LnGrp LOS	B	A	B	B	A	B	C	C	C	C	B	
Approach Vol, veh/h		605			431			155			195	
Approach Delay, s/veh		18.0			16.6			23.1			21.8	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.4	10.0		16.7	5.9	13.6		13.3
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	5.6	18.0		39.0	5.0	18.0		18.0
Max Q Clear Time (g_c+I1), s	4.4	3.8		9.4	2.4	2.8		6.9
Green Ext Time (p_c), s	0.0	0.5		2.4	0.0	0.1		1.5

Intersection Summary	
HCM 6th Ctrl Delay	18.7
HCM 6th LOS	B

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	476	244	434	117
Demand Flow Rate, veh/h	485	248	443	119
Vehicles Circulating, veh/h	273	361	72	542
Vehicles Exiting, veh/h	388	154	686	67
Ped Vol Crossing Leg, #/h	70	0	1	27
Ped Cap Adj	0.990	1.000	1.000	0.996
Approach Delay, s/veh	9.0	6.5	6.1	6.2
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	485	248	443	119
Cap Entry Lane, veh/h	1045	955	1282	794
Entry HV Adj Factor	0.981	0.982	0.980	0.983
Flow Entry, veh/h	476	244	434	117
Cap Entry, veh/h	1015	938	1256	778
V/C Ratio	0.469	0.260	0.346	0.150
Control Delay, s/veh	9.0	6.5	6.1	6.2
LOS	A	A	A	A
95th %tile Queue, veh	3	1	2	1



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	734	219	212	292	139	365
Future Volume (veh/h)	734	219	212	292	139	365
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	789	0	228	0	149	392
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	930		857		185	2197
Arrive On Green	0.27	0.00	0.46	0.00	0.10	0.62
Sat Flow, veh/h	3456	1585	1870	2790	1781	3647
Grp Volume(v), veh/h	789	0	228	0	149	392
Grp Sat Flow(s),veh/h/ln	1728	1585	1870	1395	1781	1777
Q Serve(g_s), s	19.2	0.0	6.7	0.0	7.3	4.2
Cycle Q Clear(g_c), s	19.2	0.0	6.7	0.0	7.3	4.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	930		857		185	2197
V/C Ratio(X)	0.85		0.27		0.80	0.18
Avail Cap(c_a), veh/h	1360		857		340	2197
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	0.0	14.9	0.0	39.0	7.3
Incr Delay (d2), s/veh	3.5	0.0	0.8	0.0	7.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	0.0	2.9	0.0	3.5	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.3	0.0	15.6	0.0	46.9	7.5
LnGrp LOS	C		B		D	A
Approach Vol, veh/h	789		228			541
Approach Delay, s/veh	34.3		15.6			18.3
Approach LOS	C		B			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	14.3	45.7			60.0	28.9
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	17.3	33.0			55.0	35.0
Max Q Clear Time (g_c+I1), s	9.3	8.7			6.2	21.2
Green Ext Time (p_c), s	0.2	1.3			2.9	2.7

Intersection Summary	
HCM 6th Ctrl Delay	26.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR, SBT] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	16	11	111	84	88	15	255	63	88	467	121
Future Volume (veh/h)	34	16	11	111	84	88	15	255	63	88	467	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.97		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	17	0	119	90	0	16	274	0	95	502	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	440	163		384	198		150	723		777	752	
Arrive On Green	0.24	0.24	0.00	0.24	0.24	0.00	0.40	0.40	0.00	0.40	0.40	0.00
Sat Flow, veh/h	930	679	0	756	826	1585	35	1798	1585	1105	1870	1585
Grp Volume(v), veh/h	54	0	0	209	0	0	290	0	0	95	502	0
Grp Sat Flow(s),veh/h/ln	1609	0	0	1583	0	1585	1833	0	1585	1105	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.0
Cycle Q Clear(g_c), s	0.6	0.0	0.0	3.1	0.0	0.0	3.1	0.0	0.0	0.9	6.1	0.0
Prop In Lane	0.69		0.00	0.57		1.00	0.06		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	603	0		582	0		873	0		777	752	
V/C Ratio(X)	0.09	0.00		0.36	0.00		0.33	0.00		0.12	0.67	
Avail Cap(c_a), veh/h	1182	0		1205	0		1554	0		1203	1474	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	8.3	0.0	0.0	9.2	0.0	0.0	5.9	0.0	0.0	5.3	6.8	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.4	0.0	0.0	0.2	0.0	0.0	0.1	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.8	0.0	0.0	0.6	0.0	0.0	0.2	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.4	0.0	0.0	9.6	0.0	0.0	6.1	0.0	0.0	5.3	7.8	0.0
LnGrp LOS	A	A		A	A		A	A		A	A	
Approach Vol, veh/h		54			209			290			597	
Approach Delay, s/veh		8.4			9.6			6.1			7.5	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	16.2	11.7	16.2	11.7
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	22.0	18.0	22.0	18.0
Max Q Clear Time (g_c+I1), s	5.1	2.6	8.1	5.1
Green Ext Time (p_c), s	1.6	0.2	3.1	0.9

Intersection Summary	
HCM 6th Ctrl Delay	7.5
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	85	254	3	72	530
Future Vol, veh/h	1	85	254	3	72	530
Conflicting Peds, #/hr	1	0	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	90	270	3	77	564

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	992	273	0	0	273	0
Stage 1	273	-	-	-	-	-
Stage 2	719	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	272	766	-	-	1290	-
Stage 1	773	-	-	-	-	-
Stage 2	483	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	255	764	-	-	1286	-
Mov Cap-2 Maneuver	255	-	-	-	-	-
Stage 1	771	-	-	-	-	-
Stage 2	454	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	255	764	1286	-
HCM Lane V/C Ratio	-	-	0.004	0.118	0.06	-
HCM Control Delay (s)	-	-	19.2	10.3	8	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0.4	0.2	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	13	7	247	522	5
Future Vol, veh/h	5	13	7	247	522	5
Conflicting Peds, #/hr	0	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	14	8	268	567	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	855	572	573	0	-	0
Stage 1	571	-	-	-	-	-
Stage 2	284	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	329	520	1000	-	-	-
Stage 1	565	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	326	519	999	-	-	-
Mov Cap-2 Maneuver	326	-	-	-	-	-
Stage 1	560	-	-	-	-	-
Stage 2	763	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.4	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	999	-	446	-	-
HCM Lane V/C Ratio	0.008	-	0.044	-	-
HCM Control Delay (s)	8.6	-	13.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	37	13	15	200	417	74
Future Vol, veh/h	37	13	15	200	417	74
Conflicting Peds, #/hr	0	0	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	14	16	208	434	77

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	718	478	516	0	-	0
Stage 1	478	-	-	-	-	-
Stage 2	240	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	396	587	1050	-	-	-
Stage 1	624	-	-	-	-	-
Stage 2	800	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	385	584	1045	-	-	-
Mov Cap-2 Maneuver	385	-	-	-	-	-
Stage 1	610	-	-	-	-	-
Stage 2	796	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.7	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1045	-	422	-	-
HCM Lane V/C Ratio	0.015	-	0.123	-	-
HCM Control Delay (s)	8.5	0	14.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	39	4	14	174	359	64
Future Vol, veh/h	39	4	14	174	359	64
Conflicting Peds, #/hr	0	0	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	5	16	202	417	74

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	695	461	498	0	-	0
Stage 1	461	-	-	-	-	-
Stage 2	234	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	408	600	1066	-	-	-
Stage 1	635	-	-	-	-	-
Stage 2	805	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	395	596	1059	-	-	-
Mov Cap-2 Maneuver	395	-	-	-	-	-
Stage 1	620	-	-	-	-	-
Stage 2	799	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.1	0.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1059	-	408	-	-
HCM Lane V/C Ratio	0.015	-	0.123	-	-
HCM Control Delay (s)	8.5	0	15.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	14	166	3	17	346
Future Vol, veh/h	6	14	166	3	17	346
Conflicting Peds, #/hr	1	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	16	195	4	20	407

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	647	199	0	0	201	0
Stage 1	199	-	-	-	-	-
Stage 2	448	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	436	842	-	-	1371	-
Stage 1	835	-	-	-	-	-
Stage 2	644	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	426	840	-	-	1368	-
Mov Cap-2 Maneuver	426	-	-	-	-	-
Stage 1	833	-	-	-	-	-
Stage 2	631	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	650	1368	-
HCM Lane V/C Ratio	-	-	0.036	0.015	-
HCM Control Delay (s)	-	-	10.7	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	11	116	9	27	282
Future Vol, veh/h	1	11	116	9	27	282
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	13	133	10	31	324

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	524	138	0	0	143	0
Stage 1	138	-	-	-	-	-
Stage 2	386	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	514	910	-	-	1440	-
Stage 1	889	-	-	-	-	-
Stage 2	687	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	501	910	-	-	1440	-
Mov Cap-2 Maneuver	501	-	-	-	-	-
Stage 1	889	-	-	-	-	-
Stage 2	669	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	0.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	852	1440	-
HCM Lane V/C Ratio	-	-	0.016	0.022	-
HCM Control Delay (s)	-	-	9.3	7.6	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0.1	-

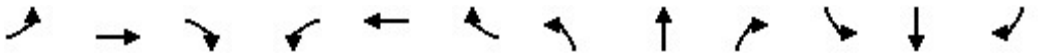
Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	9	8	95	186	70
Future Vol, veh/h	16	9	8	95	186	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	11	10	117	230	86

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	410	273	316	0	-	0
Stage 1	273	-	-	-	-	-
Stage 2	137	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	598	766	1244	-	-	-
Stage 1	773	-	-	-	-	-
Stage 2	890	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	593	766	1244	-	-	-
Mov Cap-2 Maneuver	593	-	-	-	-	-
Stage 1	766	-	-	-	-	-
Stage 2	890	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1244	-	645	-	-
HCM Lane V/C Ratio	0.008	-	0.048	-	-
HCM Control Delay (s)	7.9	0	10.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	26	29	11	20	102	17	1794	16	111	1597	160
Future Volume (veh/h)	223	26	29	11	20	102	17	1794	16	111	1597	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	228	27	0	11	20	0	17	1831	16	113	1630	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	348	345		142	231		35	2004	892	128	2190	
Arrive On Green	0.18	0.18	0.00	0.18	0.18	0.00	0.02	0.56	0.56	0.07	0.62	0.00
Sat Flow, veh/h	1392	1870	0	455	1255	1585	1781	3554	1582	1781	3554	1585
Grp Volume(v), veh/h	228	27	0	31	0	0	17	1831	16	113	1630	0
Grp Sat Flow(s),veh/h/ln	1392	1870	0	1710	0	1585	1781	1777	1582	1781	1777	1585
Q Serve(g_s), s	11.8	1.0	0.0	0.0	0.0	0.0	0.8	38.6	0.4	5.2	27.1	0.0
Cycle Q Clear(g_c), s	12.9	1.0	0.0	1.1	0.0	0.0	0.8	38.6	0.4	5.2	27.1	0.0
Prop In Lane	1.00		0.00	0.35		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	348	345		374	0		35	2004	892	128	2190	
V/C Ratio(X)	0.65	0.08		0.08	0.00		0.49	0.91	0.02	0.88	0.74	
Avail Cap(c_a), veh/h	459	494		506	0		107	2004	892	128	2190	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.9	28.1	0.0	28.2	0.0	0.0	40.5	16.4	8.0	38.3	11.3	0.0
Incr Delay (d2), s/veh	2.1	0.1	0.0	0.1	0.0	0.0	10.2	7.9	0.0	45.7	2.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.4	0.0	0.5	0.0	0.0	0.4	15.4	0.1	3.8	9.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.0	28.2	0.0	28.3	0.0	0.0	50.7	24.3	8.0	84.0	13.7	0.0
LnGrp LOS	C	C		C	A		D	C	A	F	B	
Approach Vol, veh/h		255			31			1864			1743	
Approach Delay, s/veh		34.3			28.3			24.4			18.2	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	52.0		20.4	6.6	56.4		20.4				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	6.0	47.0		22.0	5.0	48.0		22.0				
Max Q Clear Time (g_c+I1), s	7.2	40.6		14.9	2.8	29.1		3.1				
Green Ext Time (p_c), s	0.0	5.3		0.4	0.0	11.9		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		22.3
HCM 6th LOS		C

Notes

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	23	60	41	16	50	41	1658	87	44	1450	106
Future Volume (veh/h)	118	23	60	41	16	50	41	1658	87	44	1450	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	24	0	43	17	0	43	1745	0	46	1526	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	284	207		205	65		75	2140		79	2147	
Arrive On Green	0.11	0.11	0.00	0.11	0.11	0.00	0.04	0.60	0.00	0.04	0.60	0.00
Sat Flow, veh/h	1396	1870	0	950	590	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	124	24	0	60	0	0	43	1745	0	46	1526	0
Grp Sat Flow(s),veh/h/ln	1396	1870	0	1539	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.6	0.7	0.0	1.3	0.0	0.0	1.5	23.7	0.0	1.6	18.4	0.0
Cycle Q Clear(g_c), s	4.7	0.7	0.0	2.1	0.0	0.0	1.5	23.7	0.0	1.6	18.4	0.0
Prop In Lane	1.00		0.00	0.72		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	284	207		270	0		75	2140		79	2147	
V/C Ratio(X)	0.44	0.12		0.22	0.00		0.57	0.82		0.58	0.71	
Avail Cap(c_a), veh/h	537	546		542	0		144	2420		144	2420	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.4	24.7	0.0	25.3	0.0	0.0	29.0	9.6	0.0	28.9	8.5	0.0
Incr Delay (d2), s/veh	1.1	0.2	0.0	0.4	0.0	0.0	6.7	2.0	0.0	6.7	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.3	0.0	0.8	0.0	0.0	0.7	7.0	0.0	0.8	5.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.4	25.0	0.0	25.7	0.0	0.0	35.6	11.6	0.0	35.6	9.3	0.0
LnGrp LOS	C	C		C	A		D	B		D	A	
Approach Vol, veh/h		148			60			1788			1572	
Approach Delay, s/veh		27.0			25.7			12.2			10.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.7	42.1		11.8	7.6	42.3		11.8
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	5.6	42.0		18.0	5.0	42.0		18.0
Max Q Clear Time (g_c+I1), s	3.6	25.7		6.7	3.5	20.4		4.1
Green Ext Time (p_c), s	0.0	11.5		0.3	0.0	12.1		0.2

Intersection Summary	
HCM 6th Ctrl Delay	12.1
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1361	89	25	1	45	270	21	169	1	391	110	999
Future Volume (veh/h)	1361	89	25	1	45	270	21	169	1	391	110	999
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1479	97	27	1	49	293	23	184	1	425	120	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1603	653	182	4	213	717	42	278	2	487	363	
Arrive On Green	0.46	0.46	0.46	0.12	0.12	0.12	0.02	0.08	0.08	0.14	0.19	0.00
Sat Flow, veh/h	3456	1408	392	37	1831	2790	1781	3624	20	3456	1870	1585
Grp Volume(v), veh/h	1479	0	124	50	0	293	23	90	95	425	120	0
Grp Sat Flow(s),veh/h/ln	1728	0	1800	1868	0	1395	1781	1777	1867	1728	1870	1585
Q Serve(g_s), s	39.6	0.0	3.9	2.4	0.0	8.6	1.3	4.9	4.9	11.9	5.5	0.0
Cycle Q Clear(g_c), s	39.6	0.0	3.9	2.4	0.0	8.6	1.3	4.9	4.9	11.9	5.5	0.0
Prop In Lane	1.00		0.22	0.02		1.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	1603	0	835	217	0	717	42	136	143	487	363	
V/C Ratio(X)	0.92	0.00	0.15	0.23	0.00	0.41	0.55	0.66	0.66	0.87	0.33	
Avail Cap(c_a), veh/h	1713	0	892	340	0	901	90	342	359	490	530	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.8	0.0	15.3	39.7	0.0	30.5	47.7	44.4	44.4	41.6	34.3	0.0
Incr Delay (d2), s/veh	8.5	0.0	0.1	0.5	0.0	0.4	10.5	5.4	5.1	15.8	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.9	0.0	1.6	1.1	0.0	2.9	0.7	2.3	2.4	6.0	2.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.3	0.0	15.3	40.2	0.0	30.9	58.2	49.7	49.5	57.4	34.8	0.0
LnGrp LOS	C	A	B	D	A	C	E	D	D	E	C	
Approach Vol, veh/h		1603			343			208			545	
Approach Delay, s/veh		31.9			32.2			50.6			52.4	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.9	12.6		50.8	7.3	24.2		16.5
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	14.0	19.0		49.0	5.0	28.0		18.0
Max Q Clear Time (g_c+I1), s	13.9	6.9		41.6	3.3	7.5		10.6
Green Ext Time (p_c), s	0.0	0.7		4.2	0.0	0.5		0.9

Intersection Summary	
HCM 6th Ctrl Delay	37.5
HCM 6th LOS	D

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	558	240	835	89
Demand Flow Rate, veh/h	569	244	852	90
Vehicles Circulating, veh/h	250	649	80	691
Vehicles Exiting, veh/h	531	283	739	202
Ped Vol Crossing Leg, #/h	7	0	1	1
Ped Cap Adj	0.999	1.000	1.000	1.000
Approach Delay, s/veh	9.9	9.5	11.9	6.8
Approach LOS	A	A	B	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	569	244	852	90
Cap Entry Lane, veh/h	1069	712	1272	682
Entry HV Adj Factor	0.980	0.982	0.980	0.984
Flow Entry, veh/h	558	240	835	89
Cap Entry, veh/h	1047	699	1247	671
V/C Ratio	0.533	0.343	0.670	0.132
Control Delay, s/veh	9.9	9.5	11.9	6.8
LOS	A	A	B	A
95th %tile Queue, veh	3	2	6	0



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	610	245	384	915	249	338
Future Volume (veh/h)	610	245	384	915	249	338
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	735	0	463	0	300	407
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	841		766		338	2315
Arrive On Green	0.24	0.00	0.41	0.00	0.19	0.65
Sat Flow, veh/h	3456	1585	1870	2790	1781	3647
Grp Volume(v), veh/h	735	0	463	0	300	407
Grp Sat Flow(s),veh/h/ln	1728	1585	1870	1395	1781	1777
Q Serve(g_s), s	19.5	0.0	18.5	0.0	15.6	4.3
Cycle Q Clear(g_c), s	19.5	0.0	18.5	0.0	15.6	4.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	841		766		338	2315
V/C Ratio(X)	0.87		0.60		0.89	0.18
Avail Cap(c_a), veh/h	1017		766		431	2315
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	34.6	0.0	22.1	0.0	37.6	6.5
Incr Delay (d2), s/veh	7.4	0.0	3.5	0.0	16.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	0.0	8.6	0.0	8.3	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.0	0.0	25.6	0.0	54.2	6.7
LnGrp LOS	D		C		D	A
Approach Vol, veh/h	735		463			707
Approach Delay, s/veh	42.0		25.6			26.9
Approach LOS	D		C			C

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	33.1	43.9				67.0	28.2
Change Period (Y+Rc), s	5.0	5.0				5.0	5.0
Max Green Setting (Gmax), s	23.6	34.0				62.0	28.0
Max Q Clear Time (g_c+I1), s	17.6	20.5				6.3	21.5
Green Ext Time (p_c), s	0.4	2.4				3.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	32.4
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	81	29	145	47	97	13	691	158	93	484	65
Future Volume (veh/h)	102	81	29	145	47	97	13	691	158	93	484	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	107	85	0	153	49	0	14	727	0	98	509	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	319	160		410	73		112	970		563	981	
Arrive On Green	0.19	0.19	0.00	0.19	0.19	0.00	0.52	0.52	0.00	0.52	0.52	0.00
Sat Flow, veh/h	842	864	0	1223	392	1585	10	1849	1585	728	1870	1585
Grp Volume(v), veh/h	192	0	0	202	0	0	741	0	0	98	509	0
Grp Sat Flow(s),veh/h/ln	1706	0	0	1615	0	1585	1859	0	1585	728	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.0
Cycle Q Clear(g_c), s	3.3	0.0	0.0	3.6	0.0	0.0	10.7	0.0	0.0	3.0	6.1	0.0
Prop In Lane	0.56		0.00	0.76		1.00	0.02		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	479	0		483	0		1082	0		563	981	
V/C Ratio(X)	0.40	0.00		0.42	0.00		0.69	0.00		0.17	0.52	
Avail Cap(c_a), veh/h	999	0		960	0		1822	0		857	1737	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	12.8	0.0	0.0	12.9	0.0	0.0	6.4	0.0	0.0	4.6	5.3	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.6	0.0	0.0	0.8	0.0	0.0	0.1	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	1.2	0.0	0.0	2.3	0.0	0.0	0.2	1.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.3	0.0	0.0	13.5	0.0	0.0	7.2	0.0	0.0	4.7	5.8	0.0
LnGrp LOS	B	A		B	A		A	A		A	A	
Approach Vol, veh/h		192			202			741			607	
Approach Delay, s/veh		13.3			13.5			7.2			5.6	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	23.1	11.4	23.1	11.4
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	32.0	18.0	32.0	18.0
Max Q Clear Time (g_c+I1), s	12.7	5.3	8.1	5.6
Green Ext Time (p_c), s	5.3	0.8	4.3	0.9

Intersection Summary	
HCM 6th Ctrl Delay	8.1
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	88	776	5	117	546
Future Vol, veh/h	3	88	776	5	117	546
Conflicting Peds, #/hr	1	0	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	99	872	6	131	613

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1751	875	0	0	875	0
Stage 1	875	-	-	-	-	-
Stage 2	876	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	94	349	-	-	771	-
Stage 1	408	-	-	-	-	-
Stage 2	407	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	78	348	-	-	769	-
Mov Cap-2 Maneuver	78	-	-	-	-	-
Stage 1	407	-	-	-	-	-
Stage 2	337	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.5	0	1.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	78	348	769	-
HCM Lane V/C Ratio	-	-	0.043	0.284	0.171	-
HCM Control Delay (s)	-	-	53.2	19.4	10.6	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	0.1	1.1	0.6	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	15	10	771	540	7
Future Vol, veh/h	6	15	10	771	540	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	18	12	929	651	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1608	655	659	0	-	0
Stage 1	655	-	-	-	-	-
Stage 2	953	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	115	466	929	-	-	-
Stage 1	517	-	-	-	-	-
Stage 2	375	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	114	466	929	-	-	-
Mov Cap-2 Maneuver	114	-	-	-	-	-
Stage 1	510	-	-	-	-	-
Stage 2	375	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.2	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	929	-	248	-	-
HCM Lane V/C Ratio	0.013	-	0.102	-	-
HCM Control Delay (s)	8.9	-	21.2	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	66	21	14	638	453	58
Future Vol, veh/h	66	21	14	638	453	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	78	25	16	751	533	68

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1350	567	601	0	-	0
Stage 1	567	-	-	-	-	-
Stage 2	783	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	166	523	976	-	-	-
Stage 1	568	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	161	523	976	-	-	-
Mov Cap-2 Maneuver	161	-	-	-	-	-
Stage 1	552	-	-	-	-	-
Stage 2	450	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	43	0.2	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	976	-	193	-	-
HCM Lane V/C Ratio	0.017	-	0.53	-	-
HCM Control Delay (s)	8.8	0	43	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.1	-	2.7	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	85	6	6	559	383	91
Future Vol, veh/h	85	6	6	559	383	91
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	100	7	7	658	451	107

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1177	505	558	0	-	0
Stage 1	505	-	-	-	-	-
Stage 2	672	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	211	567	1013	-	-	-
Stage 1	606	-	-	-	-	-
Stage 2	508	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	209	567	1013	-	-	-
Mov Cap-2 Maneuver	209	-	-	-	-	-
Stage 1	599	-	-	-	-	-
Stage 2	508	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	36.5	0.1	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1013	-	218	-	-
HCM Lane V/C Ratio	0.007	-	0.491	-	-
HCM Control Delay (s)	8.6	0	36.5	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0	-	2.5	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	43	514	9	3	387
Future Vol, veh/h	10	43	514	9	3	387
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	52	627	11	4	472

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1114	634	0	0	639	0
Stage 1	634	-	-	-	-	-
Stage 2	480	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	230	479	-	-	945	-
Stage 1	529	-	-	-	-	-
Stage 2	622	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	228	479	-	-	944	-
Mov Cap-2 Maneuver	228	-	-	-	-	-
Stage 1	528	-	-	-	-	-
Stage 2	618	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.8	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	397	944	-
HCM Lane V/C Ratio	-	-	0.163	0.004	-
HCM Control Delay (s)	-	-	15.8	8.8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	27	419	27	3	335
Future Vol, veh/h	1	27	419	27	3	335
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	34	524	34	4	419

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	968	541	0	0	558	0
Stage 1	541	-	-	-	-	-
Stage 2	427	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	282	541	-	-	1013	-
Stage 1	583	-	-	-	-	-
Stage 2	658	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	281	541	-	-	1013	-
Mov Cap-2 Maneuver	281	-	-	-	-	-
Stage 1	583	-	-	-	-	-
Stage 2	655	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	524	1013	-
HCM Lane V/C Ratio	-	-	0.067	0.004	-
HCM Control Delay (s)	-	-	12.4	8.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	80	10	8	308	299	38
Future Vol, veh/h	80	10	8	308	299	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	100	13	10	385	374	48

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	803	398	422	0	-	0
Stage 1	398	-	-	-	-	-
Stage 2	405	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	353	652	1137	-	-	-
Stage 1	678	-	-	-	-	-
Stage 2	673	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	349	652	1137	-	-	-
Mov Cap-2 Maneuver	349	-	-	-	-	-
Stage 1	671	-	-	-	-	-
Stage 2	673	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19	0.2	0
HCM LOS	C		

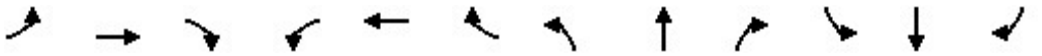
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1137	-	368	-	-
HCM Lane V/C Ratio	0.009	-	0.306	-	-
HCM Control Delay (s)	8.2	0	19	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	1.3	-	-

Appendix E
Traffic Signal Warrant, AWSC Warrant

2024 Volume		
Time	Major Volume	Minor Volume
6:00-7:00 AM	345	60
7:00-8:00 AM	381	72
8:00-9:00 AM	412	113
12:00-1:00 PM	595	70
1:00-2:00 PM	532	63
2:00-3:00 PM	498	49
3:00-4:00 PM	648	70
4:00-5:00 PM	555	67

2038 Without Project			
Time	Major Volume	Minor Volume	Pass 4-Hour Warrant?
6:00-7:00 AM	397	60	No
7:00-8:00 AM	438	72	No
8:00-9:00 AM	474	113	No
12:00-1:00 PM	684	70	Yes
1:00-2:00 PM	612	63	No
2:00-3:00 PM	572	49	No
3:00-4:00 PM	745	70	Yes
4:00-5:00 PM	638	67	No
Peak Hour	Major Volume	Minor Volume	Pass Peak Hour Warrant?
AM Peak	714	140	No
PM Peak	1066	184	Yes

Appendix F
Analysis Reports Future With Project Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	25	13	14	20	136	17	703	11	85	1146	158
Future Volume (veh/h)	94	25	13	14	20	136	17	703	11	85	1146	158
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	97	26	0	14	21	0	18	725	11	88	1181	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	272	178		133	124		39	1995	890	120	2157	
Arrive On Green	0.10	0.10	0.00	0.10	0.10	0.00	0.02	0.56	0.56	0.07	0.61	0.00
Sat Flow, veh/h	1391	1870	0	418	1305	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	97	26	0	35	0	0	18	725	11	88	1181	0
Grp Sat Flow(s),veh/h/ln	1391	1870	0	1724	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.5	0.7	0.0	0.0	0.0	0.0	0.5	6.1	0.2	2.6	10.6	0.0
Cycle Q Clear(g_c), s	3.4	0.7	0.0	0.9	0.0	0.0	0.5	6.1	0.2	2.6	10.6	0.0
Prop In Lane	1.00		0.00	0.40		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	272	178		257	0		39	1995	890	120	2157	
V/C Ratio(X)	0.36	0.15		0.14	0.00		0.46	0.36	0.01	0.73	0.55	
Avail Cap(c_a), veh/h	702	757		764	0		164	1995	890	295	2157	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	23.7	22.6	0.0	22.7	0.0	0.0	26.3	6.6	5.3	24.9	6.3	0.0
Incr Delay (d2), s/veh	0.8	0.4	0.0	0.2	0.0	0.0	8.3	0.5	0.0	8.2	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.3	0.0	0.4	0.0	0.0	0.3	1.7	0.0	1.3	2.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.5	22.9	0.0	22.9	0.0	0.0	34.5	7.1	5.3	33.1	7.3	0.0
LnGrp LOS	C	C		C	A		C	A	A	C	A	
Approach Vol, veh/h		123			35			754			1269	
Approach Delay, s/veh		24.2			22.9			7.7			9.1	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.7	35.5		10.2	6.2	38.0		10.2				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	9.0	29.0		22.0	5.0	33.0		22.0				
Max Q Clear Time (g_c+I1), s	4.6	8.1		5.4	2.5	12.6		2.9				
Green Ext Time (p_c), s	0.1	4.9		0.3	0.0	8.6		0.1				

Intersection Summary		
HCM 6th Ctrl Delay	9.7	
HCM 6th LOS	A	

Notes

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	34	13	40	25	44	12	610	36	46	1043	80
Future Volume (veh/h)	41	34	13	40	25	44	12	610	36	46	1043	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	35	0	41	26	0	12	622	0	47	1064	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	378	221		255	94		28	1460		93	1589	
Arrive On Green	0.12	0.12	0.00	0.12	0.12	0.00	0.02	0.41	0.00	0.05	0.45	0.00
Sat Flow, veh/h	1376	1870	0	787	791	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	42	35	0	67	0	0	12	622	0	47	1064	0
Grp Sat Flow(s),veh/h/ln	1376	1870	0	1578	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.0	0.6	0.0	0.6	0.0	0.0	0.2	4.5	0.0	0.9	8.5	0.0
Cycle Q Clear(g_c), s	0.8	0.6	0.0	1.3	0.0	0.0	0.2	4.5	0.0	0.9	8.5	0.0
Prop In Lane	1.00		0.00	0.61		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	378	221		349	0		28	1460		93	1589	
V/C Ratio(X)	0.11	0.16		0.19	0.00		0.43	0.43		0.51	0.67	
Avail Cap(c_a), veh/h	907	940		935	0		249	2183		249	2183	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	14.3	14.2	0.0	14.5	0.0	0.0	17.5	7.5	0.0	16.5	7.8	0.0
Incr Delay (d2), s/veh	0.1	0.3	0.0	0.3	0.0	0.0	10.0	0.2	0.0	4.2	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.2	0.0	0.4	0.0	0.0	0.2	1.1	0.0	0.4	1.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.4	14.5	0.0	14.7	0.0	0.0	27.5	7.7	0.0	20.7	8.3	0.0
LnGrp LOS	B	B		B	A		C	A		C	A	
Approach Vol, veh/h		77			67			634			1111	
Approach Delay, s/veh		14.4			14.7			8.1			8.8	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.9	19.7		9.2	5.6	21.0		9.2
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	5.9	22.0		18.0	5.0	22.0		18.0
Max Q Clear Time (g_c+I1), s	2.9	6.5		2.8	2.2	10.5		3.3
Green Ext Time (p_c), s	0.0	3.6		0.2	0.0	5.6		0.2

Intersection Summary	
HCM 6th Ctrl Delay	9.0
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	403	27	7	1	92	246	5	14	1	129	1	918
Future Volume (veh/h)	403	27	7	1	92	246	5	14	1	129	1	918
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	438	29	8	1	100	267	5	15	1	140	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	669	273	75	3	282	683	12	380	25	319	370	
Arrive On Green	0.19	0.19	0.19	0.15	0.15	0.15	0.01	0.11	0.11	0.09	0.20	0.00
Sat Flow, veh/h	3456	1411	389	19	1851	2790	1781	3384	223	3456	1870	1585
Grp Volume(v), veh/h	438	0	37	101	0	267	5	8	8	140	1	0
Grp Sat Flow(s),veh/h/ln	1728	0	1800	1869	0	1395	1781	1777	1830	1728	1870	1585
Q Serve(g_s), s	5.2	0.0	0.8	2.2	0.0	3.6	0.1	0.2	0.2	1.7	0.0	0.0
Cycle Q Clear(g_c), s	5.2	0.0	0.8	2.2	0.0	3.6	0.1	0.2	0.2	1.7	0.0	0.0
Prop In Lane	1.00		0.22	0.01		1.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	669	0	348	285	0	683	12	200	206	319	370	
V/C Ratio(X)	0.66	0.00	0.11	0.35	0.00	0.39	0.42	0.04	0.04	0.44	0.00	
Avail Cap(c_a), veh/h	1475	0	769	756	0	1386	200	719	740	388	756	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.6	0.0	14.8	16.9	0.0	14.0	22.0	17.6	17.6	19.1	14.3	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.1	0.7	0.0	0.4	21.4	0.1	0.1	0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.3	0.9	0.0	1.0	0.1	0.1	0.1	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.7	0.0	14.9	17.6	0.0	14.4	43.4	17.7	17.7	20.1	14.3	0.0
LnGrp LOS	B	A	B	B	A	B	D	B	B	C	B	
Approach Vol, veh/h		475			368			21			141	
Approach Delay, s/veh		17.5			15.3			23.8			20.0	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.1	10.0		13.6	5.3	13.8		11.8
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	5.6	18.0		19.0	5.0	18.0		18.0
Max Q Clear Time (g_c+I1), s	3.7	2.2		7.2	2.1	2.0		5.6
Green Ext Time (p_c), s	0.0	0.0		1.4	0.0	0.0		1.3

Intersection Summary	
HCM 6th Ctrl Delay	17.2
HCM 6th LOS	B

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	6.4
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	437	196	355	114
Demand Flow Rate, veh/h	446	200	362	116
Vehicles Circulating, veh/h	243	304	56	442
Vehicles Exiting, veh/h	315	114	633	62
Ped Vol Crossing Leg, #/h	70	0	1	27
Ped Cap Adj	0.990	1.000	1.000	0.996
Approach Delay, s/veh	8.0	5.5	5.3	5.5
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	446	200	362	116
Cap Entry Lane, veh/h	1077	1012	1303	879
Entry HV Adj Factor	0.980	0.980	0.981	0.983
Flow Entry, veh/h	437	196	355	114
Cap Entry, veh/h	1045	992	1278	861
V/C Ratio	0.418	0.198	0.278	0.132
Control Delay, s/veh	8.0	5.5	5.3	5.5
LOS	A	A	A	A
95th %tile Queue, veh	2	1	1	0



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	621	184	196	252	126	346
Future Volume (veh/h)	621	184	196	252	126	346
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	668	0	211	0	135	372
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	805		934		171	2319
Arrive On Green	0.23	0.00	0.50	0.00	0.10	0.65
Sat Flow, veh/h	3456	1585	1870	2790	1781	3647
Grp Volume(v), veh/h	668	0	211	0	135	372
Grp Sat Flow(s),veh/h/ln	1728	1585	1870	1395	1781	1777
Q Serve(g_s), s	16.1	0.0	5.6	0.0	6.5	3.5
Cycle Q Clear(g_c), s	16.1	0.0	5.6	0.0	6.5	3.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	805		934		171	2319
V/C Ratio(X)	0.83		0.23		0.79	0.16
Avail Cap(c_a), veh/h	1306		934		367	2319
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	0.0	12.3	0.0	38.6	5.9
Incr Delay (d2), s/veh	2.5	0.0	0.6	0.0	8.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	0.0	2.3	0.0	3.2	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.3	0.0	12.9	0.0	46.6	6.0
LnGrp LOS	C		B		D	A
Approach Vol, veh/h	668		211			507
Approach Delay, s/veh	34.3		12.9			16.8
Approach LOS	C		B			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	13.4	48.6			62.0	25.4
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	18.6	34.0			57.0	33.0
Max Q Clear Time (g_c+I1), s	8.5	7.6			5.5	18.1
Green Ext Time (p_c), s	0.2	1.2			2.7	2.3

Intersection Summary	
HCM 6th Ctrl Delay	24.7
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR, SBT] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	12	13	86	46	45	18	251	55	54	410	121
Future Volume (veh/h)	34	12	13	86	46	45	18	251	55	54	410	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		1.00	0.97		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	13	0	92	49	0	19	270	0	58	441	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	460	123		419	146		175	680		796	715	
Arrive On Green	0.21	0.21	0.00	0.21	0.21	0.00	0.38	0.38	0.00	0.38	0.38	0.00
Sat Flow, veh/h	980	596	0	843	705	1585	46	1780	1585	1109	1870	1585
Grp Volume(v), veh/h	50	0	0	141	0	0	289	0	0	58	441	0
Grp Sat Flow(s),veh/h/ln	1576	0	0	1549	0	1585	1826	0	1585	1109	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0
Cycle Q Clear(g_c), s	0.5	0.0	0.0	1.8	0.0	0.0	2.7	0.0	0.0	0.5	4.6	0.0
Prop In Lane	0.74		0.00	0.65		1.00	0.07		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	583	0		565	0		856	0		796	715	
V/C Ratio(X)	0.09	0.00		0.25	0.00		0.34	0.00		0.07	0.62	
Avail Cap(c_a), veh/h	1351	0		1362	0		1772	0		1374	1690	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.9	0.0	0.0	8.3	0.0	0.0	5.5	0.0	0.0	4.8	6.1	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.0	0.1	0.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.9	0.0	0.0	8.6	0.0	0.0	5.7	0.0	0.0	4.8	6.9	0.0
LnGrp LOS	A	A		A	A		A	A		A	A	
Approach Vol, veh/h		50			141			289			499	
Approach Delay, s/veh		7.9			8.6			5.7			6.7	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	14.3	10.0	14.3	10.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	22.0	18.0	22.0	18.0
Max Q Clear Time (g_c+I1), s	4.7	2.5	6.6	3.8
Green Ext Time (p_c), s	1.6	0.1	2.7	0.6

Intersection Summary	
HCM 6th Ctrl Delay	6.7
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	37	292	6	37	476
Future Vol, veh/h	2	37	292	6	37	476
Conflicting Peds, #/hr	1	0	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	39	311	6	39	506

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	899	314	0	0	314	0
Stage 1	314	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	309	726	-	-	1246	-
Stage 1	741	-	-	-	-	-
Stage 2	557	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	298	724	-	-	1242	-
Mov Cap-2 Maneuver	298	-	-	-	-	-
Stage 1	739	-	-	-	-	-
Stage 2	539	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	298	724	1242	-
HCM Lane V/C Ratio	-	-	0.007	0.054	0.032	-
HCM Control Delay (s)	-	-	17.2	10.3	8	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0.2	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	16	12	290	470	4
Future Vol, veh/h	4	16	12	290	470	4
Conflicting Peds, #/hr	0	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	17	13	315	511	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	855	515	516	0	-	0
Stage 1	514	-	-	-	-	-
Stage 2	341	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	329	560	1050	-	-	-
Stage 1	600	-	-	-	-	-
Stage 2	720	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	324	559	1049	-	-	-
Mov Cap-2 Maneuver	324	-	-	-	-	-
Stage 1	592	-	-	-	-	-
Stage 2	719	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1049	-	488	-	-
HCM Lane V/C Ratio	0.012	-	0.045	-	-
HCM Control Delay (s)	8.5	-	12.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	28	16	27	262	396	61
Future Vol, veh/h	28	16	27	262	396	61
Conflicting Peds, #/hr	0	0	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	17	28	273	413	64

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	779	450	482	0	-	0
Stage 1	450	-	-	-	-	-
Stage 2	329	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	364	609	1081	-	-	-
Stage 1	642	-	-	-	-	-
Stage 2	729	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	349	606	1076	-	-	-
Mov Cap-2 Maneuver	349	-	-	-	-	-
Stage 1	619	-	-	-	-	-
Stage 2	725	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.8	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1076	-	413	-	-
HCM Lane V/C Ratio	0.026	-	0.111	-	-
HCM Control Delay (s)	8.4	0	14.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	114	174	0	74	332
Future Vol, veh/h	0	114	174	0	74	332
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	124	189	0	80	361

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	710	189	0	0	189	0
Stage 1	189	-	-	-	-	-
Stage 2	521	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	400	853	-	-	1385	-
Stage 1	843	-	-	-	-	-
Stage 2	596	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	371	853	-	-	1385	-
Mov Cap-2 Maneuver	371	-	-	-	-	-
Stage 1	843	-	-	-	-	-
Stage 2	553	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	1.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	853	1385	-
HCM Lane V/C Ratio	-	-	0.145	0.058	-
HCM Control Delay (s)	-	-	9.9	7.8	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.2	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	39	4	14	135	268	63
Future Vol, veh/h	39	4	14	135	268	63
Conflicting Peds, #/hr	0	0	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	5	16	157	312	73

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	545	356	392	0	-	0
Stage 1	356	-	-	-	-	-
Stage 2	189	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	499	688	1167	-	-	-
Stage 1	709	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	485	683	1159	-	-	-
Mov Cap-2 Maneuver	485	-	-	-	-	-
Stage 1	693	-	-	-	-	-
Stage 2	837	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1159	-	498	-	-
HCM Lane V/C Ratio	0.014	-	0.1	-	-
HCM Control Delay (s)	8.2	0	13	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	11	132	3	14	259
Future Vol, veh/h	6	11	132	3	14	259
Conflicting Peds, #/hr	1	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	13	155	4	16	305

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	497	159	0	0	161	0
Stage 1	159	-	-	-	-	-
Stage 2	338	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	532	886	-	-	1418	-
Stage 1	870	-	-	-	-	-
Stage 2	722	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	523	884	-	-	1415	-
Mov Cap-2 Maneuver	523	-	-	-	-	-
Stage 1	868	-	-	-	-	-
Stage 2	711	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	711	1415	-
HCM Lane V/C Ratio	-	-	0.028	0.012	-
HCM Control Delay (s)	-	-	10.2	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	8	85	9	22	208
Future Vol, veh/h	1	8	85	9	22	208
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	9	98	10	25	239

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	392	103	0	0	108	0
Stage 1	103	-	-	-	-	-
Stage 2	289	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	612	952	-	-	1483	-
Stage 1	921	-	-	-	-	-
Stage 2	760	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	600	952	-	-	1483	-
Mov Cap-2 Maneuver	600	-	-	-	-	-
Stage 1	921	-	-	-	-	-
Stage 2	746	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	894	1483	-
HCM Lane V/C Ratio	-	-	0.012	0.017	-
HCM Control Delay (s)	-	-	9.1	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0.1	-

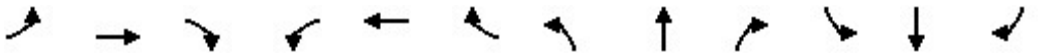
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	9	8	67	134	59
Future Vol, veh/h	15	9	8	67	134	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	11	10	83	165	73

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	305	202	238	0	-	0
Stage 1	202	-	-	-	-	-
Stage 2	103	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	687	839	1329	-	-	-
Stage 1	832	-	-	-	-	-
Stage 2	921	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	682	839	1329	-	-	-
Mov Cap-2 Maneuver	682	-	-	-	-	-
Stage 1	825	-	-	-	-	-
Stage 2	921	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1329	-	733	-	-
HCM Lane V/C Ratio	0.007	-	0.04	-	-
HCM Control Delay (s)	7.7	0	10.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	196	26	25	9	20	102	16	1437	15	111	1224	128
Future Volume (veh/h)	196	26	25	9	20	102	16	1437	15	111	1224	128
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	200	27	0	9	20	0	16	1466	15	113	1249	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	345	317		127	238		34	1895	844	144	2114	
Arrive On Green	0.17	0.17	0.00	0.17	0.17	0.00	0.02	0.53	0.53	0.08	0.59	0.00
Sat Flow, veh/h	1392	1870	0	348	1400	1585	1781	3554	1582	1781	3554	1585
Grp Volume(v), veh/h	200	27	0	29	0	0	16	1466	15	113	1249	0
Grp Sat Flow(s),veh/h/ln	1392	1870	0	1748	0	1585	1781	1777	1582	1781	1777	1585
Q Serve(g_s), s	8.5	0.8	0.0	0.0	0.0	0.0	0.6	22.7	0.3	4.3	15.2	0.0
Cycle Q Clear(g_c), s	9.4	0.8	0.0	0.9	0.0	0.0	0.6	22.7	0.3	4.3	15.2	0.0
Prop In Lane	1.00		0.00	0.31		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	345	317		365	0		34	1895	844	144	2114	
V/C Ratio(X)	0.58	0.09		0.08	0.00		0.47	0.77	0.02	0.79	0.59	
Avail Cap(c_a), veh/h	550	593		613	0		128	1895	844	154	2114	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.7	24.3	0.0	24.3	0.0	0.0	33.7	12.9	7.6	31.3	8.8	0.0
Incr Delay (d2), s/veh	1.5	0.1	0.0	0.1	0.0	0.0	9.7	3.1	0.0	21.8	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.4	0.0	0.4	0.0	0.0	0.3	8.2	0.1	2.6	4.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	24.4	0.0	24.4	0.0	0.0	43.4	16.0	7.7	53.0	10.0	0.0
LnGrp LOS	C	C		C	A		D	B	A	D	A	
Approach Vol, veh/h		227			29			1497			1362	
Approach Delay, s/veh		28.7			24.4			16.2			13.6	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.6	42.0		16.8	6.3	46.3		16.8				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	6.0	37.0		22.0	5.0	38.0		22.0				
Max Q Clear Time (g_c+I1), s	6.3	24.7		11.4	2.6	17.2		2.9				
Green Ext Time (p_c), s	0.0	7.9		0.5	0.0	9.3		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		16.0	
HCM 6th LOS		B	

Notes

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	23	38	35	16	50	19	1353	81	44	1132	69
Future Volume (veh/h)	85	23	38	35	16	50	19	1353	81	44	1132	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	89	24	0	37	17	0	20	1424	0	46	1192	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	308	182		221	66		44	1846		87	1931	
Arrive On Green	0.10	0.10	0.00	0.10	0.10	0.00	0.02	0.52	0.00	0.05	0.54	0.00
Sat Flow, veh/h	1396	1870	0	884	679	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	89	24	0	54	0	0	20	1424	0	46	1192	0
Grp Sat Flow(s),veh/h/ln	1396	1870	0	1562	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.0	0.5	0.0	0.7	0.0	0.0	0.5	14.4	0.0	1.1	10.3	0.0
Cycle Q Clear(g_c), s	2.4	0.5	0.0	1.3	0.0	0.0	0.5	14.4	0.0	1.1	10.3	0.0
Prop In Lane	1.00		0.00	0.69		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	308	182		288	0		44	1846		87	1931	
V/C Ratio(X)	0.29	0.13		0.19	0.00		0.46	0.77		0.53	0.62	
Avail Cap(c_a), veh/h	732	751		746	0		199	2139		199	2139	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.3	18.5	0.0	18.8	0.0	0.0	21.6	8.6	0.0	20.8	7.0	0.0
Incr Delay (d2), s/veh	0.5	0.3	0.0	0.3	0.0	0.0	7.2	1.5	0.0	5.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.2	0.0	0.5	0.0	0.0	0.3	3.8	0.0	0.5	2.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.8	18.8	0.0	19.2	0.0	0.0	28.8	10.2	0.0	25.8	7.5	0.0
LnGrp LOS	B	B		B	A		C	B		C	A	
Approach Vol, veh/h		113			54			1444			1238	
Approach Delay, s/veh		19.6			19.2			10.4			8.2	
Approach LOS		B			B			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.2	28.3		9.4	6.1	29.4		9.4
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	5.6	27.0		18.0	5.0	27.0		18.0
Max Q Clear Time (g_c+I1), s	3.1	16.4		4.4	2.5	12.3		3.3
Green Ext Time (p_c), s	0.0	6.9		0.2	0.0	7.3		0.1

Intersection Summary	
HCM 6th Ctrl Delay	10.0
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1112	85	17	1	42	237	17	105	1	335	1	808
Future Volume (veh/h)	1112	85	17	1	42	237	17	105	1	335	1	808
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1209	92	18	1	46	258	18	114	1	364	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1395	613	120	5	214	693	37	251	2	454	337	
Arrive On Green	0.40	0.40	0.40	0.12	0.12	0.12	0.02	0.07	0.07	0.13	0.18	0.00
Sat Flow, veh/h	3456	1520	297	40	1829	2790	1781	3610	32	3456	1870	1585
Grp Volume(v), veh/h	1209	0	110	47	0	258	18	56	59	364	1	0
Grp Sat Flow(s),veh/h/ln	1728	0	1817	1868	0	1395	1781	1777	1865	1728	1870	1585
Q Serve(g_s), s	23.1	0.0	2.8	1.6	0.0	5.5	0.7	2.2	2.2	7.3	0.0	0.0
Cycle Q Clear(g_c), s	23.1	0.0	2.8	1.6	0.0	5.5	0.7	2.2	2.2	7.3	0.0	0.0
Prop In Lane	1.00		0.16	0.02		1.00	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	1395	0	733	218	0	693	37	124	130	454	337	
V/C Ratio(X)	0.87	0.00	0.15	0.22	0.00	0.37	0.48	0.45	0.45	0.80	0.00	
Avail Cap(c_a), veh/h	1636	0	860	468	0	1066	124	445	467	481	599	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.6	0.0	13.6	28.7	0.0	22.4	34.8	32.1	32.1	30.3	24.2	0.0
Incr Delay (d2), s/veh	4.6	0.0	0.1	0.5	0.0	0.3	9.3	2.6	2.5	9.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.1	0.0	1.0	0.7	0.0	1.7	0.4	1.0	1.0	3.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.3	0.0	13.7	29.2	0.0	22.7	44.0	34.7	34.6	39.3	24.2	0.0
LnGrp LOS	C	A	B	C	A	C	D	C	C	D	C	
Approach Vol, veh/h		1319			305			133			365	
Approach Delay, s/veh		23.4			23.7			35.9			39.2	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.4	10.0		34.0	6.5	17.9		13.4
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	10.0	18.0		34.0	5.0	23.0		18.0
Max Q Clear Time (g_c+I1), s	9.3	4.2		25.1	2.7	2.0		7.5
Green Ext Time (p_c), s	0.1	0.4		3.9	0.0	0.0		0.9

Intersection Summary	
HCM 6th Ctrl Delay	26.9
HCM 6th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	491	187	761	86
Demand Flow Rate, veh/h	501	191	776	87
Vehicles Circulating, veh/h	218	608	54	602
Vehicles Exiting, veh/h	471	222	665	197
Ped Vol Crossing Leg, #/h	7	0	1	1
Ped Cap Adj	0.999	1.000	1.000	1.000
Approach Delay, s/veh	8.3	7.9	9.8	6.1
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	501	191	776	87
Cap Entry Lane, veh/h	1105	742	1306	747
Entry HV Adj Factor	0.980	0.980	0.981	0.984
Flow Entry, veh/h	491	187	761	86
Cap Entry, veh/h	1082	727	1281	735
V/C Ratio	0.454	0.257	0.594	0.117
Control Delay, s/veh	8.3	7.9	9.8	6.1
LOS	A	A	A	A
95th %tile Queue, veh	2	1	4	0



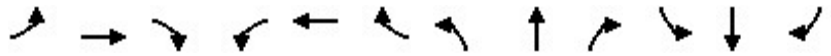
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	541	218	371	793	216	332
Future Volume (veh/h)	541	218	371	793	216	332
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	652	0	447	0	260	400
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	762		844		300	2390
Arrive On Green	0.22	0.00	0.45	0.00	0.17	0.67
Sat Flow, veh/h	3456	1585	1870	2790	1781	3647
Grp Volume(v), veh/h	652	0	447	0	260	400
Grp Sat Flow(s),veh/h/ln	1728	1585	1870	1395	1781	1777
Q Serve(g_s), s	17.0	0.0	16.1	0.0	13.3	3.9
Cycle Q Clear(g_c), s	17.0	0.0	16.1	0.0	13.3	3.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	762		844		300	2390
V/C Ratio(X)	0.86		0.53		0.87	0.17
Avail Cap(c_a), veh/h	996		844		437	2390
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	35.1	0.0	18.5	0.0	37.9	5.7
Incr Delay (d2), s/veh	5.9	0.0	2.4	0.0	11.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	0.0	7.3	0.0	6.7	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	40.9	0.0	20.9	0.0	49.9	5.8
LnGrp LOS	D		C		D	A
Approach Vol, veh/h	652		447			660
Approach Delay, s/veh	40.9		20.9			23.2
Approach LOS	D		C			C

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	30.8	47.2			68.0	25.7
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	23.8	35.0			63.0	27.0
Max Q Clear Time (g_c+I1), s	15.3	18.1			5.9	19.0
Green Ext Time (p_c), s	0.5	2.6			3.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	29.2
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	56	20	128	47	55	14	638	126	44	483	65
Future Volume (veh/h)	102	56	20	128	47	55	14	638	126	44	483	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	107	59	0	135	49	0	15	672	0	46	508	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	367	123		410	79		125	920		613	933	
Arrive On Green	0.18	0.18	0.00	0.18	0.18	0.00	0.50	0.50	0.00	0.50	0.50	0.00
Sat Flow, veh/h	984	691	0	1170	446	1585	12	1844	1585	766	1870	1585
Grp Volume(v), veh/h	166	0	0	184	0	0	687	0	0	46	508	0
Grp Sat Flow(s),veh/h/ln	1675	0	0	1616	0	1585	1857	0	1585	766	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	5.8	0.0
Cycle Q Clear(g_c), s	2.5	0.0	0.0	3.0	0.0	0.0	9.0	0.0	0.0	1.0	5.8	0.0
Prop In Lane	0.64		0.00	0.73		1.00	0.02		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	489	0		489	0		1045	0		613	933	
V/C Ratio(X)	0.34	0.00		0.38	0.00		0.66	0.00		0.08	0.54	
Avail Cap(c_a), veh/h	1096	0		1076	0		1728	0		899	1632	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	11.5	0.0	0.0	11.6	0.0	0.0	6.1	0.0	0.0	4.1	5.3	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.5	0.0	0.0	0.7	0.0	0.0	0.1	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	1.0	0.0	0.0	1.8	0.0	0.0	0.1	1.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.9	0.0	0.0	12.1	0.0	0.0	6.9	0.0	0.0	4.2	5.8	0.0
LnGrp LOS	B	A		B	A		A	A		A	A	
Approach Vol, veh/h		166			184			687			554	
Approach Delay, s/veh		11.9			12.1			6.9			5.7	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	20.4	10.5	20.4	10.5
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	27.0	18.0	27.0	18.0
Max Q Clear Time (g_c+I1), s	11.0	4.5	7.8	5.0
Green Ext Time (p_c), s	4.4	0.7	3.5	0.8

Intersection Summary	
HCM 6th Ctrl Delay	7.6
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	42	731	6	61	571
Future Vol, veh/h	4	42	731	6	61	571
Conflicting Peds, #/hr	1	0	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	47	821	7	69	642

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1605	824	0	0	824	0
Stage 1	824	-	-	-	-	-
Stage 2	781	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	116	373	-	-	806	-
Stage 1	431	-	-	-	-	-
Stage 2	451	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	106	372	-	-	804	-
Mov Cap-2 Maneuver	106	-	-	-	-	-
Stage 1	430	-	-	-	-	-
Stage 2	412	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.2	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	106	372	804	-
HCM Lane V/C Ratio	-	-	0.042	0.127	0.085	-
HCM Control Delay (s)	-	-	40.5	16.1	9.9	-
HCM Lane LOS	-	-	E	C	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.4	0.3	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	23	13	729	569	5
Future Vol, veh/h	5	23	13	729	569	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	28	16	878	686	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1599	689	692	0	-	0
Stage 1	689	-	-	-	-	-
Stage 2	910	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	117	446	903	-	-	-
Stage 1	498	-	-	-	-	-
Stage 2	393	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	115	446	903	-	-	-
Mov Cap-2 Maneuver	115	-	-	-	-	-
Stage 1	489	-	-	-	-	-
Stage 2	393	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.8	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	903	-	295	-	-
HCM Lane V/C Ratio	0.017	-	0.114	-	-
HCM Control Delay (s)	9.1	-	18.8	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	33	18	630	513	46
Future Vol, veh/h	55	33	18	630	513	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	39	21	741	604	54

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1414	631	658	0	-	0
Stage 1	631	-	-	-	-	-
Stage 2	783	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	152	481	930	-	-	-
Stage 1	530	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	146	481	930	-	-	-
Mov Cap-2 Maneuver	146	-	-	-	-	-
Stage 1	510	-	-	-	-	-
Stage 2	450	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	41.5	0.2	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	930	-	198	-	-
HCM Lane V/C Ratio	0.023	-	0.523	-	-
HCM Control Delay (s)	9	0	41.5	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.1	-	2.7	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	133	506	0	166	377
Future Vol, veh/h	0	133	506	0	166	377
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	145	550	0	180	410

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1320	550	0	0	550	0
Stage 1	550	-	-	-	-	-
Stage 2	770	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	173	535	-	-	1020	-
Stage 1	578	-	-	-	-	-
Stage 2	457	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	134	535	-	-	1020	-
Mov Cap-2 Maneuver	134	-	-	-	-	-
Stage 1	578	-	-	-	-	-
Stage 2	353	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.2	0	2.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	535	1020	-
HCM Lane V/C Ratio	-	-	0.27	0.177	-
HCM Control Delay (s)	-	-	14.2	9.3	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.1	0.6	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	84	6	6	423	287	91
Future Vol, veh/h	84	6	6	423	287	91
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	99	7	7	498	338	107

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	904	392	445	0	-	0
Stage 1	392	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	307	657	1115	-	-	-
Stage 1	683	-	-	-	-	-
Stage 2	602	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	304	657	1115	-	-	-
Mov Cap-2 Maneuver	304	-	-	-	-	-
Stage 1	677	-	-	-	-	-
Stage 2	602	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.1	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1115	-	315	-	-
HCM Lane V/C Ratio	0.006	-	0.336	-	-
HCM Control Delay (s)	8.2	0	22.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	1.4	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	36	390	9	3	292
Future Vol, veh/h	10	36	390	9	3	292
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	44	476	11	4	356

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	847	483	0	0	488	0
Stage 1	483	-	-	-	-	-
Stage 2	364	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	332	584	-	-	1075	-
Stage 1	620	-	-	-	-	-
Stage 2	703	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	330	583	-	-	1074	-
Mov Cap-2 Maneuver	330	-	-	-	-	-
Stage 1	619	-	-	-	-	-
Stage 2	699	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	500	1074	-
HCM Lane V/C Ratio	-	-	0.112	0.003	-
HCM Control Delay (s)	-	-	13.1	8.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	23	312	27	3	244
Future Vol, veh/h	1	23	312	27	3	244
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	29	390	34	4	305

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	720	407	0	0	424	0
Stage 1	407	-	-	-	-	-
Stage 2	313	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	395	644	-	-	1135	-
Stage 1	672	-	-	-	-	-
Stage 2	741	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	393	644	-	-	1135	-
Mov Cap-2 Maneuver	393	-	-	-	-	-
Stage 1	672	-	-	-	-	-
Stage 2	738	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	627	1135	-
HCM Lane V/C Ratio	-	-	0.048	0.003	-
HCM Control Delay (s)	-	-	11	8.2	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

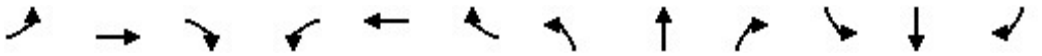
Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	68	10	8	226	215	33
Future Vol, veh/h	68	10	8	226	215	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	85	13	10	283	269	41

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	593	290	310	0	-	0
Stage 1	290	-	-	-	-	-
Stage 2	303	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	468	749	1250	-	-	-
Stage 1	759	-	-	-	-	-
Stage 2	749	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	464	749	1250	-	-	-
Mov Cap-2 Maneuver	464	-	-	-	-	-
Stage 1	752	-	-	-	-	-
Stage 2	749	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.2	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1250	-	488	-	-
HCM Lane V/C Ratio	0.008	-	0.2	-	-
HCM Control Delay (s)	7.9	0	14.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	25	14	16	20	136	23	984	11	85	1357	179
Future Volume (veh/h)	122	25	14	16	20	136	23	984	11	85	1357	179
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	126	26	0	16	21	0	24	1014	11	88	1399	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	295	220		145	145		49	1977	882	117	2111	
Arrive On Green	0.12	0.12	0.00	0.12	0.12	0.00	0.03	0.56	0.56	0.07	0.59	0.00
Sat Flow, veh/h	1391	1870	0	470	1236	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	126	26	0	37	0	0	24	1014	11	88	1399	0
Grp Sat Flow(s),veh/h/ln	1391	1870	0	1706	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.7	0.7	0.0	0.0	0.0	0.0	0.8	10.2	0.2	2.8	15.2	0.0
Cycle Q Clear(g_c), s	4.7	0.7	0.0	1.0	0.0	0.0	0.8	10.2	0.2	2.8	15.2	0.0
Prop In Lane	1.00		0.00	0.43		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	295	220		290	0		49	1977	882	117	2111	
V/C Ratio(X)	0.43	0.12		0.13	0.00		0.49	0.51	0.01	0.75	0.66	
Avail Cap(c_a), veh/h	664	715		720	0		155	1977	882	186	2111	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.4	22.7	0.0	22.9	0.0	0.0	27.6	7.9	5.7	26.4	7.8	0.0
Incr Delay (d2), s/veh	1.0	0.2	0.0	0.2	0.0	0.0	7.2	1.0	0.0	9.4	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.3	0.0	0.4	0.0	0.0	0.4	3.1	0.1	1.4	4.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.4	23.0	0.0	23.1	0.0	0.0	34.8	8.9	5.7	35.8	9.5	0.0
LnGrp LOS	C	C		C	A		C	A	A	D	A	
Approach Vol, veh/h		152			37			1049			1487	
Approach Delay, s/veh		25.0			23.1			9.4			11.0	
Approach LOS		C			C			A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.8	37.0		11.8	6.6	39.2		11.8				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	6.0	32.0		22.0	5.0	33.0		22.0				
Max Q Clear Time (g_c+I1), s	4.8	12.2		6.7	2.8	17.2		3.0				
Green Ext Time (p_c), s	0.0	7.1		0.4	0.0	9.0		0.1				

Intersection Summary		
HCM 6th Ctrl Delay	11.4	
HCM 6th LOS	B	

Notes

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	34	30	43	25	44	26	855	50	46	1220	105
Future Volume (veh/h)	73	34	30	43	25	44	26	855	50	46	1220	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	35	0	44	26	0	27	872	0	47	1245	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	362	224		243	94		58	1601		91	1667	
Arrive On Green	0.12	0.12	0.00	0.12	0.12	0.00	0.03	0.45	0.00	0.05	0.47	0.00
Sat Flow, veh/h	1376	1870	0	790	787	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	74	35	0	70	0	0	27	872	0	47	1245	0
Grp Sat Flow(s),veh/h/ln	1376	1870	0	1577	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.0	0.7	0.0	0.7	0.0	0.0	0.6	7.1	0.0	1.0	11.3	0.0
Cycle Q Clear(g_c), s	1.5	0.7	0.0	1.5	0.0	0.0	0.6	7.1	0.0	1.0	11.3	0.0
Prop In Lane	1.00		0.00	0.63		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	362	224		337	0		58	1601		91	1667	
V/C Ratio(X)	0.20	0.16		0.21	0.00		0.47	0.54		0.52	0.75	
Avail Cap(c_a), veh/h	821	849		844	0		225	1972		225	1972	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.0	15.6	0.0	16.0	0.0	0.0	18.8	7.9	0.0	18.3	8.6	0.0
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.3	0.0	0.0	5.8	0.3	0.0	4.5	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.3	0.0	0.5	0.0	0.0	0.3	1.8	0.0	0.5	2.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.3	16.0	0.0	16.3	0.0	0.0	24.6	8.2	0.0	22.8	9.9	0.0
LnGrp LOS	B	B		B	A		C	A		C	A	
Approach Vol, veh/h		109			70			899			1292	
Approach Delay, s/veh		16.2			16.3			8.7			10.4	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.0	22.9		9.8	6.3	23.6		9.8
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	5.0	22.0		18.0	5.0	22.0		18.0
Max Q Clear Time (g_c+I1), s	3.0	9.1		3.5	2.6	13.3		3.5
Green Ext Time (p_c), s	0.0	4.8		0.3	0.0	5.3		0.2

Intersection Summary	
HCM 6th Ctrl Delay	10.2
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	509	28	10	1	96	300	13	129	1	147	32	1066
Future Volume (veh/h)	509	28	10	1	96	300	13	129	1	147	32	1066
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	553	30	11	1	104	326	14	140	1	160	35	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	800	302	111	3	312	722	32	369	3	312	327	
Arrive On Green	0.23	0.23	0.23	0.17	0.17	0.17	0.02	0.10	0.10	0.09	0.17	0.00
Sat Flow, veh/h	3456	1306	479	18	1852	2790	1781	3617	26	3456	1870	1585
Grp Volume(v), veh/h	553	0	41	105	0	326	14	69	72	160	35	0
Grp Sat Flow(s),veh/h/ln	1728	0	1784	1869	0	1395	1781	1777	1866	1728	1870	1585
Q Serve(g_s), s	7.2	0.0	0.9	2.4	0.0	4.8	0.4	1.8	1.8	2.2	0.8	0.0
Cycle Q Clear(g_c), s	7.2	0.0	0.9	2.4	0.0	4.8	0.4	1.8	1.8	2.2	0.8	0.0
Prop In Lane	1.00		0.27	0.01		1.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	800	0	413	315	0	722	32	181	190	312	327	
V/C Ratio(X)	0.69	0.00	0.10	0.33	0.00	0.45	0.44	0.38	0.38	0.51	0.11	
Avail Cap(c_a), veh/h	2043	0	1055	686	0	1276	182	652	685	352	686	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.2	0.0	14.8	18.0	0.0	15.3	23.8	20.6	20.6	21.3	17.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.1	0.6	0.0	0.4	9.5	1.3	1.2	1.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.3	1.0	0.0	1.4	0.2	0.7	0.8	0.8	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.3	0.0	14.9	18.6	0.0	15.7	33.3	21.9	21.8	22.6	17.2	0.0
LnGrp LOS	B	A	B	B	A	B	C	C	C	C	B	
Approach Vol, veh/h		594			431			155			195	
Approach Delay, s/veh		18.1			16.4			22.9			21.6	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.4	10.0		16.4	5.9	13.6		13.3
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	5.6	18.0		29.0	5.0	18.0		18.0
Max Q Clear Time (g_c+I1), s	4.2	3.8		9.2	2.4	2.8		6.8
Green Ext Time (p_c), s	0.0	0.5		2.2	0.0	0.1		1.5

Intersection Summary	
HCM 6th Ctrl Delay	18.6
HCM 6th LOS	B

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	483	247	454	119
Demand Flow Rate, veh/h	492	251	463	121
Vehicles Circulating, veh/h	278	378	72	559
Vehicles Exiting, veh/h	402	157	698	70
Ped Vol Crossing Leg, #/h	70	0	1	27
Ped Cap Adj	0.990	1.000	1.000	0.996
Approach Delay, s/veh	9.2	6.7	6.3	6.4
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	492	251	463	121
Cap Entry Lane, veh/h	1039	938	1282	780
Entry HV Adj Factor	0.981	0.982	0.980	0.983
Flow Entry, veh/h	483	247	454	119
Cap Entry, veh/h	1010	922	1257	764
V/C Ratio	0.478	0.267	0.361	0.156
Control Delay, s/veh	9.2	6.7	6.3	6.4
LOS	A	A	A	A
95th %tile Queue, veh	3	1	2	1



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	709	219	242	309	139	384
Future Volume (veh/h)	709	219	242	309	139	384
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	762	0	260	0	149	413
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	900		874		185	2230
Arrive On Green	0.26	0.00	0.47	0.00	0.10	0.63
Sat Flow, veh/h	3456	1585	1870	2790	1781	3647
Grp Volume(v), veh/h	762	0	260	0	149	413
Grp Sat Flow(s),veh/h/ln	1728	1585	1870	1395	1781	1777
Q Serve(g_s), s	18.7	0.0	7.7	0.0	7.3	4.4
Cycle Q Clear(g_c), s	18.7	0.0	7.7	0.0	7.3	4.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	900		874		185	2230
V/C Ratio(X)	0.85		0.30		0.80	0.19
Avail Cap(c_a), veh/h	1317		874		339	2230
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	31.3	0.0	14.7	0.0	39.1	7.0
Incr Delay (d2), s/veh	3.6	0.0	0.9	0.0	7.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	0.0	3.3	0.0	3.5	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.9	0.0	15.6	0.0	47.0	7.2
LnGrp LOS	C		B		D	A
Approach Vol, veh/h	762		260			562
Approach Delay, s/veh	34.9		15.6			17.8
Approach LOS	C		B			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	14.3	46.7			61.0	28.2
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	17.3	34.0			56.0	34.0
Max Q Clear Time (g_c+I1), s	9.3	9.7			6.4	20.7
Green Ext Time (p_c), s	0.2	1.5			3.1	2.6

Intersection Summary	
HCM 6th Ctrl Delay	25.6
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR, SBT] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	16	14	124	84	67	22	328	76	73	500	121
Future Volume (veh/h)	34	16	14	124	84	67	22	328	76	73	500	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.97		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	17	0	133	90	0	24	353	0	78	538	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	441	166		394	189		148	733		746	773	
Arrive On Green	0.25	0.25	0.00	0.25	0.25	0.00	0.41	0.41	0.00	0.41	0.41	0.00
Sat Flow, veh/h	949	667	0	803	764	1585	45	1774	1585	1028	1870	1585
Grp Volume(v), veh/h	54	0	0	223	0	0	377	0	0	78	538	0
Grp Sat Flow(s),veh/h/ln	1617	0	0	1566	0	1585	1818	0	1585	1028	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.0	7.0	0.0
Cycle Q Clear(g_c), s	0.7	0.0	0.0	3.6	0.0	0.0	4.4	0.0	0.0	0.9	7.0	0.0
Prop In Lane	0.69		0.00	0.60		1.00	0.06		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	606	0		583	0		881	0		746	773	
V/C Ratio(X)	0.09	0.00		0.38	0.00		0.43	0.00		0.10	0.70	
Avail Cap(c_a), veh/h	1123	0		1135	0		1459	0		1087	1393	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	8.6	0.0	0.0	9.6	0.0	0.0	6.4	0.0	0.0	5.4	7.1	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.4	0.0	0.0	0.3	0.0	0.0	0.1	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.2	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.7	0.0	0.0	10.0	0.0	0.0	6.7	0.0	0.0	5.4	8.3	0.0
LnGrp LOS	A	A		B	A		A	A		A	A	
Approach Vol, veh/h		54			223			377			616	
Approach Delay, s/veh		8.7			10.0			6.7			7.9	
Approach LOS		A			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	17.2	12.3	17.2	12.3
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	22.0	18.0	22.0	18.0
Max Q Clear Time (g_c+I1), s	6.4	2.7	9.0	5.6
Green Ext Time (p_c), s	2.1	0.2	3.2	1.0

Intersection Summary	
HCM 6th Ctrl Delay	8.0
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	63	368	6	57	589
Future Vol, veh/h	2	63	368	6	57	589
Conflicting Peds, #/hr	1	0	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	67	391	6	61	627

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1144	394	0	0	394	0
Stage 1	394	-	-	-	-	-
Stage 2	750	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	221	655	-	-	1165	-
Stage 1	681	-	-	-	-	-
Stage 2	467	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	209	653	-	-	1162	-
Mov Cap-2 Maneuver	209	-	-	-	-	-
Stage 1	679	-	-	-	-	-
Stage 2	442	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.4	0	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	209	653	1162	-
HCM Lane V/C Ratio	-	-	0.01	0.103	0.052	-
HCM Control Delay (s)	-	-	22.4	11.1	8.3	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0.3	0.2	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	17	13	365	582	5
Future Vol, veh/h	5	17	13	365	582	5
Conflicting Peds, #/hr	0	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	18	14	397	633	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1062	638	639	0	-	0
Stage 1	637	-	-	-	-	-
Stage 2	425	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	247	477	945	-	-	-
Stage 1	527	-	-	-	-	-
Stage 2	659	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	243	476	944	-	-	-
Mov Cap-2 Maneuver	243	-	-	-	-	-
Stage 1	519	-	-	-	-	-
Stage 2	658	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.8	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	944	-	391	-	-
HCM Lane V/C Ratio	0.015	-	0.061	-	-
HCM Control Delay (s)	8.9	-	14.8	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	37	18	31	327	489	74
Future Vol, veh/h	37	18	31	327	489	74
Conflicting Peds, #/hr	0	0	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	19	32	341	509	77

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	958	553	591	0	-	0
Stage 1	553	-	-	-	-	-
Stage 2	405	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	285	533	985	-	-	-
Stage 1	576	-	-	-	-	-
Stage 2	673	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	271	530	980	-	-	-
Mov Cap-2 Maneuver	271	-	-	-	-	-
Stage 1	550	-	-	-	-	-
Stage 2	670	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.5	0.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	980	-	323	-	-
HCM Lane V/C Ratio	0.033	-	0.177	-	-
HCM Control Delay (s)	8.8	0	18.5	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	114	244	0	74	426
Future Vol, veh/h	0	114	244	0	74	426
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	124	265	0	80	463

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	888	265	0	0	265	0
Stage 1	265	-	-	-	-	-
Stage 2	623	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	314	774	-	-	1299	-
Stage 1	779	-	-	-	-	-
Stage 2	535	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	288	774	-	-	1299	-
Mov Cap-2 Maneuver	288	-	-	-	-	-
Stage 1	779	-	-	-	-	-
Stage 2	491	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	1.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	774	1299	-
HCM Lane V/C Ratio	-	-	0.16	0.062	-
HCM Control Delay (s)	-	-	10.5	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0.2	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	39	4	19	204	362	64
Future Vol, veh/h	39	4	19	204	362	64
Conflicting Peds, #/hr	0	0	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	5	22	237	421	74

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	746	465	502	0	-	0
Stage 1	465	-	-	-	-	-
Stage 2	281	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	381	597	1062	-	-	-
Stage 1	632	-	-	-	-	-
Stage 2	767	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	367	593	1055	-	-	-
Mov Cap-2 Maneuver	367	-	-	-	-	-
Stage 1	612	-	-	-	-	-
Stage 2	762	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.9	0.7	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1055	-	380	-	-
HCM Lane V/C Ratio	0.021	-	0.132	-	-
HCM Control Delay (s)	8.5	0	15.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	36	180	4	30	337
Future Vol, veh/h	6	36	180	4	30	337
Conflicting Peds, #/hr	1	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	42	212	5	35	396

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	684	217	0	0	219	0
Stage 1	217	-	-	-	-	-
Stage 2	467	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	414	823	-	-	1350	-
Stage 1	819	-	-	-	-	-
Stage 2	631	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	399	821	-	-	1347	-
Mov Cap-2 Maneuver	399	-	-	-	-	-
Stage 1	817	-	-	-	-	-
Stage 2	610	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	713	1347	-
HCM Lane V/C Ratio	-	-	0.069	0.026	-
HCM Control Delay (s)	-	-	10.4	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	32	110	9	40	264
Future Vol, veh/h	1	32	110	9	40	264
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	37	126	10	46	303

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	526	131	0	0	136	0
Stage 1	131	-	-	-	-	-
Stage 2	395	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	512	919	-	-	1448	-
Stage 1	895	-	-	-	-	-
Stage 2	681	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	493	919	-	-	1448	-
Mov Cap-2 Maneuver	493	-	-	-	-	-
Stage 1	895	-	-	-	-	-
Stage 2	655	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	896	1448	-
HCM Lane V/C Ratio	-	-	0.042	0.032	-
HCM Control Delay (s)	-	-	9.2	7.6	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

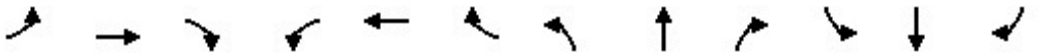
Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	9	8	90	174	70
Future Vol, veh/h	16	9	8	90	174	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	11	10	111	215	86

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	389	258	301	0	-	0
Stage 1	258	-	-	-	-	-
Stage 2	131	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	615	781	1260	-	-	-
Stage 1	785	-	-	-	-	-
Stage 2	895	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	610	781	1260	-	-	-
Mov Cap-2 Maneuver	610	-	-	-	-	-
Stage 1	779	-	-	-	-	-
Stage 2	895	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.7	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1260	-	662	-	-
HCM Lane V/C Ratio	0.008	-	0.047	-	-
HCM Control Delay (s)	7.9	0	10.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	26	30	11	20	102	18	1733	16	111	1564	160
Future Volume (veh/h)	223	26	30	11	20	102	18	1733	16	111	1564	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	228	27	0	11	20	0	18	1768	16	113	1596	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	348	345		142	231		36	2004	892	128	2187	
Arrive On Green	0.18	0.18	0.00	0.18	0.18	0.00	0.02	0.56	0.56	0.07	0.62	0.00
Sat Flow, veh/h	1392	1870	0	455	1255	1585	1781	3554	1582	1781	3554	1585
Grp Volume(v), veh/h	228	27	0	31	0	0	18	1768	16	113	1596	0
Grp Sat Flow(s),veh/h/ln	1392	1870	0	1710	0	1585	1781	1777	1582	1781	1777	1585
Q Serve(g_s), s	11.8	1.0	0.0	0.0	0.0	0.0	0.8	36.0	0.4	5.2	26.1	0.0
Cycle Q Clear(g_c), s	12.9	1.0	0.0	1.1	0.0	0.0	0.8	36.0	0.4	5.2	26.1	0.0
Prop In Lane	1.00		0.00	0.35		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	348	345		374	0		36	2004	892	128	2187	
V/C Ratio(X)	0.65	0.08		0.08	0.00		0.49	0.88	0.02	0.88	0.73	
Avail Cap(c_a), veh/h	459	494		506	0		107	2004	892	128	2187	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.9	28.1	0.0	28.2	0.0	0.0	40.4	15.8	8.0	38.3	11.2	0.0
Incr Delay (d2), s/veh	2.1	0.1	0.0	0.1	0.0	0.0	10.0	6.0	0.0	45.7	2.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.4	0.0	0.5	0.0	0.0	0.5	14.0	0.1	3.8	9.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.0	28.2	0.0	28.3	0.0	0.0	50.4	21.8	8.0	84.0	13.4	0.0
LnGrp LOS	C	C		C	A		D	C	A	F	B	
Approach Vol, veh/h		255			31			1802			1709	
Approach Delay, s/veh		34.3			28.3			22.0			18.0	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	52.0		20.4	6.7	56.3		20.4				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	6.0	47.0		22.0	5.0	48.0		22.0				
Max Q Clear Time (g_c+I1), s	7.2	38.0		14.9	2.8	28.1		3.1				
Green Ext Time (p_c), s	0.0	7.1		0.4	0.0	12.0		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		21.1
HCM 6th LOS		C

Notes

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	23	62	42	16	50	41	1610	91	44	1431	106
Future Volume (veh/h)	118	23	62	42	16	50	41	1610	91	44	1431	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	24	0	44	17	0	43	1695	0	46	1506	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	295	210		215	66		77	2065		81	2072	
Arrive On Green	0.11	0.11	0.00	0.11	0.11	0.00	0.04	0.58	0.00	0.05	0.58	0.00
Sat Flow, veh/h	1396	1870	0	951	588	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	124	24	0	61	0	0	43	1695	0	46	1506	0
Grp Sat Flow(s),veh/h/ln	1396	1870	0	1539	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.4	0.7	0.0	1.2	0.0	0.0	1.4	21.9	0.0	1.5	17.6	0.0
Cycle Q Clear(g_c), s	4.4	0.7	0.0	2.0	0.0	0.0	1.4	21.9	0.0	1.5	17.6	0.0
Prop In Lane	1.00		0.00	0.72		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	295	210		281	0		77	2065		81	2072	
V/C Ratio(X)	0.42	0.11		0.22	0.00		0.56	0.82		0.57	0.73	
Avail Cap(c_a), veh/h	577	587		582	0		155	2293		155	2293	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.4	22.9	0.0	23.4	0.0	0.0	26.9	9.6	0.0	26.8	8.6	0.0
Incr Delay (d2), s/veh	1.0	0.2	0.0	0.4	0.0	0.0	6.2	2.3	0.0	6.2	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.3	0.0	0.7	0.0	0.0	0.7	6.4	0.0	0.7	4.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.4	23.1	0.0	23.8	0.0	0.0	33.1	11.9	0.0	33.0	9.7	0.0
LnGrp LOS	C	C		C	A		C	B		C	A	
Approach Vol, veh/h		148			61			1738			1552	
Approach Delay, s/veh		25.0			23.8			12.4			10.4	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.6	38.3		11.4	7.5	38.4		11.4
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	5.6	37.0		18.0	5.0	37.0		18.0
Max Q Clear Time (g_c+I1), s	3.5	23.9		6.4	3.4	19.6		4.0
Green Ext Time (p_c), s	0.0	9.4		0.3	0.0	10.4		0.2

Intersection Summary	
HCM 6th Ctrl Delay	12.3
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1310	89	25	1	45	270	21	169	1	391	110	978
Future Volume (veh/h)	1310	89	25	1	45	270	21	169	1	391	110	978
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1424	97	27	1	49	293	23	184	1	425	120	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1528	622	173	4	220	710	43	289	2	464	355	
Arrive On Green	0.44	0.44	0.44	0.12	0.12	0.12	0.02	0.08	0.08	0.13	0.19	0.00
Sat Flow, veh/h	3456	1408	392	37	1831	2790	1781	3624	20	3456	1870	1585
Grp Volume(v), veh/h	1424	0	124	50	0	293	23	90	95	425	120	0
Grp Sat Flow(s),veh/h/ln	1728	0	1800	1868	0	1395	1781	1777	1867	1728	1870	1585
Q Serve(g_s), s	34.9	0.0	3.7	2.2	0.0	7.8	1.1	4.4	4.4	10.8	5.0	0.0
Cycle Q Clear(g_c), s	34.9	0.0	3.7	2.2	0.0	7.8	1.1	4.4	4.4	10.8	5.0	0.0
Prop In Lane	1.00		0.22	0.02		1.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	1528	0	796	224	0	710	43	142	149	464	355	
V/C Ratio(X)	0.93	0.00	0.16	0.22	0.00	0.41	0.53	0.64	0.64	0.92	0.34	
Avail Cap(c_a), veh/h	1586	0	826	376	0	937	100	378	397	464	544	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	23.7	0.0	14.9	35.5	0.0	27.7	43.1	39.9	39.9	38.2	31.3	0.0
Incr Delay (d2), s/veh	10.2	0.0	0.1	0.5	0.0	0.4	9.7	4.7	4.5	22.8	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.2	0.0	1.4	1.0	0.0	2.6	0.6	2.1	2.2	5.9	2.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.9	0.0	15.0	36.0	0.0	28.1	52.8	44.5	44.3	61.0	31.9	0.0
LnGrp LOS	C	A	B	D	A	C	D	D	D	E	C	
Approach Vol, veh/h		1548			343			208			545	
Approach Delay, s/veh		32.3			29.3			45.3			54.6	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	12.1		44.5	7.2	21.9		15.7
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	12.0	19.0		41.0	5.0	26.0		18.0
Max Q Clear Time (g_c+I1), s	12.8	6.4		36.9	3.1	7.0		9.8
Green Ext Time (p_c), s	0.0	0.7		2.6	0.0	0.5		0.9

Intersection Summary	
HCM 6th Ctrl Delay	37.6
HCM 6th LOS	D

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	11.4
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	585	249	866	94
Demand Flow Rate, veh/h	596	253	883	96
Vehicles Circulating, veh/h	265	673	80	717
Vehicles Exiting, veh/h	548	290	781	209
Ped Vol Crossing Leg, #/h	7	0	1	1
Ped Cap Adj	0.999	1.000	1.000	1.000
Approach Delay, s/veh	10.8	10.1	12.6	7.2
Approach LOS	B	B	B	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	596	253	883	96
Cap Entry Lane, veh/h	1053	695	1272	664
Entry HV Adj Factor	0.981	0.983	0.981	0.983
Flow Entry, veh/h	585	249	866	94
Cap Entry, veh/h	1032	683	1247	653
V/C Ratio	0.567	0.364	0.694	0.145
Control Delay, s/veh	10.8	10.1	12.6	7.2
LOS	B	B	B	A
95th %tile Queue, veh	4	2	6	1



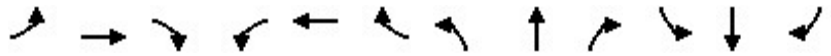
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	635	245	421	915	249	384
Future Volume (veh/h)	635	245	421	915	249	384
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	765	0	507	0	300	463
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	855		793		334	2340
Arrive On Green	0.25	0.00	0.42	0.00	0.19	0.66
Sat Flow, veh/h	3456	1585	1870	2790	1781	3647
Grp Volume(v), veh/h	765	0	507	0	300	463
Grp Sat Flow(s),veh/h/ln	1728	1585	1870	1395	1781	1777
Q Serve(g_s), s	22.7	0.0	22.8	0.0	17.5	5.4
Cycle Q Clear(g_c), s	22.7	0.0	22.8	0.0	17.5	5.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	855		793		334	2340
V/C Ratio(X)	0.90		0.64		0.90	0.20
Avail Cap(c_a), veh/h	975		793		419	2340
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	38.7	0.0	24.2	0.0	42.2	7.1
Incr Delay (d2), s/veh	9.8	0.0	3.9	0.0	18.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.7	0.0	10.7	0.0	9.3	2.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	48.5	0.0	28.1	0.0	60.9	7.3
LnGrp LOS	D		C		E	A
Approach Vol, veh/h	765		507			763
Approach Delay, s/veh	48.5		28.1			28.4
Approach LOS	D		C			C

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	24.9	50.1			75.0	31.3
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	25.9	40.0			70.0	30.0
Max Q Clear Time (g_c+I1), s	19.5	24.8			7.4	24.7
Green Ext Time (p_c), s	0.4	2.9			3.5	1.5

Intersection Summary	
HCM 6th Ctrl Delay	35.9
HCM 6th LOS	D

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	81	35	169	47	76	16	768	177	70	591	65
Future Volume (veh/h)	102	81	35	169	47	76	16	768	177	70	591	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	107	85	0	178	49	0	17	808	0	74	622	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	305	177		408	68		100	1013		489	1029	
Arrive On Green	0.20	0.20	0.00	0.20	0.20	0.00	0.55	0.55	0.00	0.55	0.55	0.00
Sat Flow, veh/h	826	898	0	1249	344	1585	12	1842	1585	675	1870	1585
Grp Volume(v), veh/h	192	0	0	227	0	0	825	0	0	74	622	0
Grp Sat Flow(s),veh/h/ln	1723	0	0	1592	0	1585	1854	0	1585	675	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	8.9	0.0
Cycle Q Clear(g_c), s	3.7	0.0	0.0	4.9	0.0	0.0	14.0	0.0	0.0	3.1	8.9	0.0
Prop In Lane	0.56		0.00	0.78		1.00	0.02		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	481	0		476	0		1113	0		489	1029	
V/C Ratio(X)	0.40	0.00		0.48	0.00		0.74	0.00		0.15	0.60	
Avail Cap(c_a), veh/h	880	0		839	0		1586	0		664	1515	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	14.2	0.0	0.0	14.6	0.0	0.0	7.2	0.0	0.0	4.7	6.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.7	0.0	0.0	1.1	0.0	0.0	0.1	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.0	1.7	0.0	0.0	3.4	0.0	0.0	0.2	2.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.8	0.0	0.0	15.3	0.0	0.0	8.3	0.0	0.0	4.8	6.6	0.0
LnGrp LOS	B	A		B	A		A	A		A	A	
Approach Vol, veh/h		192			227			825			696	
Approach Delay, s/veh		14.8			15.3			8.3			6.4	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	26.7	12.8	26.7	12.8
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	32.0	18.0	32.0	18.0
Max Q Clear Time (g_c+I1), s	16.0	5.7	10.9	6.9
Green Ext Time (p_c), s	5.7	0.8	5.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	67	892	7	94	704
Future Vol, veh/h	5	67	892	7	94	704
Conflicting Peds, #/hr	1	0	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	75	1002	8	106	791

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2009	1005	0	0	1005	0
Stage 1	1005	-	-	-	-	-
Stage 2	1004	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	65	293	-	-	689	-
Stage 1	354	-	-	-	-	-
Stage 2	354	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	55	292	-	-	687	-
Mov Cap-2 Maneuver	55	-	-	-	-	-
Stage 1	353	-	-	-	-	-
Stage 2	299	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.5	0	1.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	55	292	687	-
HCM Lane V/C Ratio	-	-	0.102	0.258	0.154	-
HCM Control Delay (s)	-	-	77.8	21.6	11.2	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	0.3	1	0.5	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	25	14	889	701	7
Future Vol, veh/h	6	25	14	889	701	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	30	17	1071	845	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1954	849	853	0	-	0
Stage 1	849	-	-	-	-	-
Stage 2	1105	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	70	361	786	-	-	-
Stage 1	419	-	-	-	-	-
Stage 2	317	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	68	361	786	-	-	-
Mov Cap-2 Maneuver	68	-	-	-	-	-
Stage 1	410	-	-	-	-	-
Stage 2	317	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.5	0.2	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	786	-	197	-	-
HCM Lane V/C Ratio	0.021	-	0.19	-	-
HCM Control Delay (s)	9.7	-	27.5	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	-	-

Intersection	
Int Delay, s/veh	9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	66	37	20	770	629	58
Future Vol, veh/h	66	37	20	770	629	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	78	44	24	906	740	68

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1728	774	808	0	-	0
Stage 1	774	-	-	-	-	-
Stage 2	954	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	97	398	817	-	-	-
Stage 1	455	-	-	-	-	-
Stage 2	374	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	91	398	817	-	-	-
Mov Cap-2 Maneuver	91	-	-	-	-	-
Stage 1	428	-	-	-	-	-
Stage 2	374	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	136.5	0.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	817	-	126	-	-
HCM Lane V/C Ratio	0.029	-	0.962	-	-
HCM Control Delay (s)	9.5	0	136.5	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0.1	-	6.4	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	133	649	0	166	497
Future Vol, veh/h	0	133	649	0	166	497
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	145	705	0	180	540

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1605	705	0	0	705	0
Stage 1	705	-	-	-	-	-
Stage 2	900	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	116	436	-	-	893	-
Stage 1	490	-	-	-	-	-
Stage 2	397	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	83	436	-	-	893	-
Mov Cap-2 Maneuver	83	-	-	-	-	-
Stage 1	490	-	-	-	-	-
Stage 2	283	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.3	0	2.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	436	893	-
HCM Lane V/C Ratio	-	-	0.332	0.202	-
HCM Control Delay (s)	-	-	17.3	10	0
HCM Lane LOS	-	-	C	B	A
HCM 95th %tile Q(veh)	-	-	1.4	0.8	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	85	6	6	565	407	91
Future Vol, veh/h	85	6	6	565	407	91
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	100	7	7	665	479	107

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1212	533	586	0	-	0
Stage 1	533	-	-	-	-	-
Stage 2	679	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	201	547	989	-	-	-
Stage 1	588	-	-	-	-	-
Stage 2	504	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	199	547	989	-	-	-
Mov Cap-2 Maneuver	199	-	-	-	-	-
Stage 1	582	-	-	-	-	-
Stage 2	504	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	39.3	0.1	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	989	-	208	-	-
HCM Lane V/C Ratio	0.007	-	0.515	-	-
HCM Control Delay (s)	8.7	0	39.3	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0	-	2.6	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	65	501	10	26	389
Future Vol, veh/h	10	65	501	10	26	389
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	79	611	12	32	474

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1156	618	0	0	624	0
Stage 1	618	-	-	-	-	-
Stage 2	538	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	217	489	-	-	957	-
Stage 1	538	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	207	489	-	-	956	-
Mov Cap-2 Maneuver	207	-	-	-	-	-
Stage 1	537	-	-	-	-	-
Stage 2	559	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.1	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	414	956	-
HCM Lane V/C Ratio	-	-	0.221	0.033	-
HCM Control Delay (s)	-	-	16.1	8.9	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.8	0.1	-

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	49	392	27	26	315
Future Vol, veh/h	1	49	392	27	26	315
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	61	490	34	33	394

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	967	507	0	0	524	0
Stage 1	507	-	-	-	-	-
Stage 2	460	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	282	566	-	-	1043	-
Stage 1	605	-	-	-	-	-
Stage 2	636	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	271	566	-	-	1043	-
Mov Cap-2 Maneuver	271	-	-	-	-	-
Stage 1	605	-	-	-	-	-
Stage 2	611	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.3	0	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	554	1043	-
HCM Lane V/C Ratio	-	-	0.113	0.031	-
HCM Control Delay (s)	-	-	12.3	8.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	80	10	8	288	280	38
Future Vol, veh/h	80	10	8	288	280	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	100	13	10	360	350	48

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	754	374	398	0	-	0
Stage 1	374	-	-	-	-	-
Stage 2	380	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	377	672	1161	-	-	-
Stage 1	696	-	-	-	-	-
Stage 2	691	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	373	672	1161	-	-	-
Mov Cap-2 Maneuver	373	-	-	-	-	-
Stage 1	688	-	-	-	-	-
Stage 2	691	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.8	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1161	-	392	-	-
HCM Lane V/C Ratio	0.009	-	0.287	-	-
HCM Control Delay (s)	8.1	0	17.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	1.2	-	-

Intersection	
Intersection Delay, s/veh	6.4
Intersection LOS	A

Approach	EB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	58	373	586
Demand Flow Rate, veh/h	59	381	598
Vehicles Circulating, veh/h	519	40	33
Vehicles Exiting, veh/h	112	538	388
Ped Vol Crossing Leg, #/h	5	0	0
Ped Cap Adj	0.999	1.000	1.000
Approach Delay, s/veh	5.2	5.3	7.2
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LR	LT	TR
Assumed Moves	LR	LT	TR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	59	381	598
Cap Entry Lane, veh/h	813	1325	1334
Entry HV Adj Factor	0.983	0.979	0.980
Flow Entry, veh/h	58	373	586
Cap Entry, veh/h	798	1297	1307
V/C Ratio	0.073	0.288	0.448
Control Delay, s/veh	5.2	5.3	7.2
LOS	A	A	A
95th %tile Queue, veh	0	1	2

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	37	18	31	327	489	74
Future Vol, veh/h	37	18	31	327	489	74
Conflicting Peds, #/hr	0	0	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	19	32	341	509	77

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	958	553	591	0	-	0
Stage 1	553	-	-	-	-	-
Stage 2	405	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	285	533	985	-	-	-
Stage 1	576	-	-	-	-	-
Stage 2	673	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	273	530	980	-	-	-
Mov Cap-2 Maneuver	399	-	-	-	-	-
Stage 1	554	-	-	-	-	-
Stage 2	670	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.6	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	980	-	434	-	-
HCM Lane V/C Ratio	0.033	-	0.132	-	-
HCM Control Delay (s)	8.8	-	14.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Intersection	
Intersection Delay, s/veh	12.1
Intersection LOS	B

Approach	EB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	122	930	808
Demand Flow Rate, veh/h	125	948	824
Vehicles Circulating, veh/h	755	80	24
Vehicles Exiting, veh/h	93	800	1004
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	8.2	14.5	10.0
Approach LOS	A	B	A

Lane	Left	Left	Left
Designated Moves	LR	LT	TR
Assumed Moves	LR	LT	TR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	125	948	824
Cap Entry Lane, veh/h	639	1272	1346
Entry HV Adj Factor	0.976	0.981	0.981
Flow Entry, veh/h	122	930	808
Cap Entry, veh/h	624	1247	1321
V/C Ratio	0.196	0.745	0.612
Control Delay, s/veh	8.2	14.5	10.0
LOS	A	B	A
95th %tile Queue, veh	1	7	4

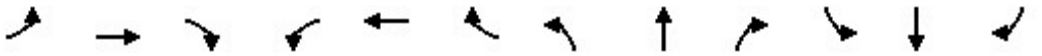
Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	66	37	20	770	629	58
Future Vol, veh/h	66	37	20	770	629	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	78	44	24	906	740	68

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1728	774	808	0	-	0
Stage 1	774	-	-	-	-	-
Stage 2	954	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	97	398	817	-	-	-
Stage 1	455	-	-	-	-	-
Stage 2	374	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	94	398	817	-	-	-
Mov Cap-2 Maneuver	227	-	-	-	-	-
Stage 1	442	-	-	-	-	-
Stage 2	374	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	29.1	0.2	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	817	-	268	-	-
HCM Lane V/C Ratio	0.029	-	0.452	-	-
HCM Control Delay (s)	9.5	-	29.1	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	2.2	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	25	14	16	20	136	23	1060	11	85	1490	179
Future Volume (veh/h)	122	25	14	16	20	136	23	1060	11	85	1490	179
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	126	26	0	16	21	0	24	1093	11	88	1536	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	295	220		145	145		49	1977	882	117	2111	
Arrive On Green	0.12	0.12	0.00	0.12	0.12	0.00	0.03	0.56	0.56	0.07	0.59	0.00
Sat Flow, veh/h	1391	1870	0	470	1236	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	126	26	0	37	0	0	24	1093	11	88	1536	0
Grp Sat Flow(s),veh/h/ln	1391	1870	0	1706	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.7	0.7	0.0	0.0	0.0	0.0	0.8	11.3	0.2	2.8	17.8	0.0
Cycle Q Clear(g_c), s	4.7	0.7	0.0	1.0	0.0	0.0	0.8	11.3	0.2	2.8	17.8	0.0
Prop In Lane	1.00		0.00	0.43		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	295	220		290	0		49	1977	882	117	2111	
V/C Ratio(X)	0.43	0.12		0.13	0.00		0.49	0.55	0.01	0.75	0.73	
Avail Cap(c_a), veh/h	664	715		720	0		155	1977	882	186	2111	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.4	22.7	0.0	22.9	0.0	0.0	27.6	8.2	5.7	26.4	8.3	0.0
Incr Delay (d2), s/veh	1.0	0.2	0.0	0.2	0.0	0.0	7.2	1.1	0.0	9.4	2.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.3	0.0	0.4	0.0	0.0	0.4	3.4	0.1	1.4	5.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.4	23.0	0.0	23.1	0.0	0.0	34.8	9.3	5.7	35.8	10.6	0.0
LnGrp LOS	C	C		C	A		C	A	A	D	B	
Approach Vol, veh/h		152			37			1128			1624	
Approach Delay, s/veh		25.0			23.1			9.8			11.9	
Approach LOS		C			C			A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.8	37.0		11.8	6.6	39.2		11.8				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	6.0	32.0		22.0	5.0	33.0		22.0				
Max Q Clear Time (g_c+I1), s	4.8	13.3		6.7	2.8	19.8		3.0				
Green Ext Time (p_c), s	0.0	7.6		0.4	0.0	8.7		0.1				

Intersection Summary		
HCM 6th Ctrl Delay	11.9	
HCM 6th LOS	B	

Notes

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	34	30	45	25	44	27	920	52	46	1341	105
Future Volume (veh/h)	73	34	30	45	25	44	27	920	52	46	1341	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	35	0	46	26	0	28	939	0	47	1368	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	335	211		226	84		59	1763		89	1822	
Arrive On Green	0.11	0.11	0.00	0.11	0.11	0.00	0.03	0.50	0.00	0.05	0.51	0.00
Sat Flow, veh/h	1376	1870	0	817	750	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	74	35	0	72	0	0	28	939	0	47	1368	0
Grp Sat Flow(s),veh/h/ln	1376	1870	0	1567	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.0	0.7	0.0	1.0	0.0	0.0	0.7	7.9	0.0	1.1	13.4	0.0
Cycle Q Clear(g_c), s	1.7	0.7	0.0	1.8	0.0	0.0	0.7	7.9	0.0	1.1	13.4	0.0
Prop In Lane	1.00		0.00	0.64		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	335	211		311	0		59	1763		89	1822	
V/C Ratio(X)	0.22	0.17		0.23	0.00		0.48	0.53		0.53	0.75	
Avail Cap(c_a), veh/h	744	767		760	0		203	2105		243	2186	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.0	17.6	0.0	18.0	0.0	0.0	20.9	7.6	0.0	20.4	8.5	0.0
Incr Delay (d2), s/veh	0.3	0.4	0.0	0.4	0.0	0.0	5.9	0.3	0.0	4.9	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.3	0.0	0.6	0.0	0.0	0.3	2.0	0.0	0.5	3.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.4	18.0	0.0	18.4	0.0	0.0	26.8	7.8	0.0	25.2	9.7	0.0
LnGrp LOS	B	B		B	A		C	A		C	A	
Approach Vol, veh/h		109			72			967			1415	
Approach Delay, s/veh		18.2			18.4			8.4			10.2	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.2	26.8		9.9	6.4	27.5		9.9
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	6.6	26.0		18.0	5.0	27.0		18.0
Max Q Clear Time (g_c+I1), s	3.1	9.9		3.7	2.7	15.4		3.8
Green Ext Time (p_c), s	0.0	5.9		0.3	0.0	7.1		0.2

Intersection Summary	
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	580	28	10	1	96	300	13	129	1	147	32	1192
Future Volume (veh/h)	580	28	10	1	96	300	13	129	1	147	32	1192
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	630	30	11	1	104	326	14	140	1	160	35	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	890	336	123	3	307	708	31	354	3	303	314	
Arrive On Green	0.26	0.26	0.26	0.17	0.17	0.17	0.02	0.10	0.10	0.09	0.17	0.00
Sat Flow, veh/h	3456	1306	479	18	1852	2790	1781	3617	26	3456	1870	1585
Grp Volume(v), veh/h	630	0	41	105	0	326	14	69	72	160	35	0
Grp Sat Flow(s),veh/h/ln	1728	0	1784	1869	0	1395	1781	1777	1866	1728	1870	1585
Q Serve(g_s), s	8.5	0.0	0.9	2.5	0.0	5.1	0.4	1.9	1.9	2.3	0.8	0.0
Cycle Q Clear(g_c), s	8.5	0.0	0.9	2.5	0.0	5.1	0.4	1.9	1.9	2.3	0.8	0.0
Prop In Lane	1.00		0.27	0.01		1.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	890	0	460	310	0	708	31	174	182	303	314	
V/C Ratio(X)	0.71	0.00	0.09	0.34	0.00	0.46	0.45	0.40	0.40	0.53	0.11	
Avail Cap(c_a), veh/h	4527	0	2337	658	0	1226	174	660	693	405	731	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.2	0.0	14.4	18.8	0.0	16.1	24.9	21.7	21.7	22.3	18.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.1	0.6	0.0	0.5	9.6	1.5	1.4	1.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	0.3	1.1	0.0	1.5	0.2	0.8	0.8	0.9	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.3	0.0	14.5	19.5	0.0	16.6	34.5	23.1	23.0	23.7	18.2	0.0
LnGrp LOS	B	A	B	B	A	B	C	C	C	C	B	
Approach Vol, veh/h		671			431			155			195	
Approach Delay, s/veh		18.1			17.3			24.1			22.7	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.5	10.0		18.2	5.9	13.6		13.5
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	6.6	19.0		67.0	5.0	20.0		18.0
Max Q Clear Time (g_c+I1), s	4.3	3.9		10.5	2.4	2.8		7.1
Green Ext Time (p_c), s	0.1	0.6		2.7	0.0	0.1		1.5

Intersection Summary	
HCM 6th Ctrl Delay	19.1
HCM 6th LOS	B

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	501	254	497	124
Demand Flow Rate, veh/h	511	258	507	126
Vehicles Circulating, veh/h	290	413	72	595
Vehicles Exiting, veh/h	431	166	729	76
Ped Vol Crossing Leg, #/h	70	0	1	27
Ped Cap Adj	0.990	1.000	1.000	0.996
Approach Delay, s/veh	9.7	7.1	6.7	6.7
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	511	258	507	126
Cap Entry Lane, veh/h	1027	906	1282	752
Entry HV Adj Factor	0.980	0.983	0.980	0.983
Flow Entry, veh/h	501	254	497	124
Cap Entry, veh/h	996	890	1256	737
V/C Ratio	0.503	0.285	0.395	0.168
Control Delay, s/veh	9.7	7.1	6.7	6.7
LOS	A	A	A	A
95th %tile Queue, veh	3	1	2	1



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	784	219	270	353	139	402
Future Volume (veh/h)	784	219	270	353	139	402
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	843	0	290	0	149	432
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	981		837		184	2154
Arrive On Green	0.28	0.00	0.45	0.00	0.10	0.61
Sat Flow, veh/h	3456	1585	1870	2790	1781	3647
Grp Volume(v), veh/h	843	0	290	0	149	432
Grp Sat Flow(s),veh/h/ln	1728	1585	1870	1395	1781	1777
Q Serve(g_s), s	21.0	0.0	9.2	0.0	7.4	4.9
Cycle Q Clear(g_c), s	21.0	0.0	9.2	0.0	7.4	4.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	981		837		184	2154
V/C Ratio(X)	0.86		0.35		0.81	0.20
Avail Cap(c_a), veh/h	1333		837		314	2154
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	0.0	16.4	0.0	39.8	8.0
Incr Delay (d2), s/veh	4.5	0.0	1.1	0.0	8.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.1	0.0	4.1	0.0	3.6	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.2	0.0	17.5	0.0	47.9	8.2
LnGrp LOS	D		B		D	A
Approach Vol, veh/h	843		290			581
Approach Delay, s/veh	35.2		17.5			18.4
Approach LOS	D		B			B

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	14.4	45.6				60.0	30.7
Change Period (Y+Rc), s	5.0	5.0				5.0	5.0
Max Green Setting (Gmax), s	16.6	34.0				55.0	35.0
Max Q Clear Time (g_c+I1), s	9.4	11.2				6.9	23.0
Green Ext Time (p_c), s	0.2	1.7				3.2	2.8

Intersection Summary	
HCM 6th Ctrl Delay	26.5
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR, SBT] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	16	15	131	84	88	24	374	82	88	555	121
Future Volume (veh/h)	34	16	15	131	84	88	24	374	82	88	555	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.97		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	17	0	141	90	0	26	402	0	95	597	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	432	164		389	181		138	763		613	816	
Arrive On Green	0.25	0.25	0.00	0.25	0.25	0.00	0.44	0.44	0.00	0.44	0.44	0.00
Sat Flow, veh/h	967	658	0	830	726	1585	42	1749	1585	983	1870	1585
Grp Volume(v), veh/h	54	0	0	231	0	0	428	0	0	95	597	0
Grp Sat Flow(s),veh/h/ln	1624	0	0	1556	0	1585	1790	0	1585	983	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	3.2	0.0	0.0	0.1	0.0	0.0	0.0	8.4	0.0
Cycle Q Clear(g_c), s	0.7	0.0	0.0	4.1	0.0	0.0	8.5	0.0	0.0	2.3	8.4	0.0
Prop In Lane	0.69		0.00	0.61		1.00	0.06		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	596	0		571	0		901	0		613	816	
V/C Ratio(X)	0.09	0.00		0.40	0.00		0.48	0.00		0.15	0.73	
Avail Cap(c_a), veh/h	1046	0		1049	0		1341	0		863	1291	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	9.2	0.0	0.0	10.4	0.0	0.0	6.6	0.0	0.0	5.7	7.4	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.5	0.0	0.0	0.4	0.0	0.0	0.1	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	1.1	0.0	0.0	1.3	0.0	0.0	0.2	2.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.3	0.0	0.0	10.9	0.0	0.0	7.0	0.0	0.0	5.8	8.7	0.0
LnGrp LOS	A	A		B	A		A	A		A	A	
Approach Vol, veh/h		54			231			428			692	
Approach Delay, s/veh		9.3			10.9			7.0			8.3	
Approach LOS		A			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	18.9	13.0	18.9	13.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	22.0	18.0	22.0	18.0
Max Q Clear Time (g_c+I1), s	10.5	2.7	10.4	6.1
Green Ext Time (p_c), s	2.1	0.2	3.5	1.0

Intersection Summary	
HCM 6th Ctrl Delay	8.4
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	85	402	7	72	642
Future Vol, veh/h	2	85	402	7	72	642
Conflicting Peds, #/hr	1	0	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	90	428	7	77	683

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1269	431	0	0	431	0
Stage 1	431	-	-	-	-	-
Stage 2	838	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	186	624	-	-	1129	-
Stage 1	655	-	-	-	-	-
Stage 2	424	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	173	622	-	-	1126	-
Mov Cap-2 Maneuver	173	-	-	-	-	-
Stage 1	653	-	-	-	-	-
Stage 2	395	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	173	622	1126	-
HCM Lane V/C Ratio	-	-	0.012	0.145	0.068	-
HCM Control Delay (s)	-	-	26.1	11.8	8.4	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0.5	0.2	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	18	14	399	634	5
Future Vol, veh/h	5	18	14	399	634	5
Conflicting Peds, #/hr	0	1	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	20	15	434	689	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1157	694	695	0	-	0
Stage 1	693	-	-	-	-	-
Stage 2	464	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	217	443	901	-	-	-
Stage 1	496	-	-	-	-	-
Stage 2	633	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	213	442	900	-	-	-
Mov Cap-2 Maneuver	213	-	-	-	-	-
Stage 1	487	-	-	-	-	-
Stage 2	632	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.8	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	900	-	358	-	-
HCM Lane V/C Ratio	0.017	-	0.07	-	-
HCM Control Delay (s)	9.1	-	15.8	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	37	19	35	358	534	74
Future Vol, veh/h	37	19	35	358	534	74
Conflicting Peds, #/hr	0	0	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	20	36	373	556	77

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1045	600	638	0	-	0
Stage 1	600	-	-	-	-	-
Stage 2	445	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	253	501	946	-	-	-
Stage 1	548	-	-	-	-	-
Stage 2	646	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	241	499	941	-	-	-
Mov Cap-2 Maneuver	372	-	-	-	-	-
Stage 1	524	-	-	-	-	-
Stage 2	643	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.3	0.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	941	-	407	-	-
HCM Lane V/C Ratio	0.039	-	0.143	-	-
HCM Control Delay (s)	9	-	15.3	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	114	279	0	74	473
Future Vol, veh/h	0	114	279	0	74	473
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	124	303	0	80	514

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	977	303	0	0	303	0
Stage 1	303	-	-	-	-	-
Stage 2	674	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	278	737	-	-	1258	-
Stage 1	749	-	-	-	-	-
Stage 2	506	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	253	737	-	-	1258	-
Mov Cap-2 Maneuver	253	-	-	-	-	-
Stage 1	749	-	-	-	-	-
Stage 2	461	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	1.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	737	1258	-
HCM Lane V/C Ratio	-	-	0.168	0.064	-
HCM Control Delay (s)	-	-	10.9	8.1	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0.2	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	39	5	22	239	408	64
Future Vol, veh/h	39	5	22	239	408	64
Conflicting Peds, #/hr	0	0	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	6	26	278	474	74

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	848	518	555	0	-	0
Stage 1	518	-	-	-	-	-
Stage 2	330	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	332	558	1015	-	-	-
Stage 1	598	-	-	-	-	-
Stage 2	728	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	317	554	1008	-	-	-
Mov Cap-2 Maneuver	317	-	-	-	-	-
Stage 1	575	-	-	-	-	-
Stage 2	723	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.8	0.7	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1008	-	333	-	-
HCM Lane V/C Ratio	0.025	-	0.154	-	-
HCM Control Delay (s)	8.7	0	17.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	36	217	6	30	382
Future Vol, veh/h	7	36	217	6	30	382
Conflicting Peds, #/hr	1	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	42	255	7	35	449

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	781	261	0	0	264	0
Stage 1	261	-	-	-	-	-
Stage 2	520	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	363	778	-	-	1300	-
Stage 1	783	-	-	-	-	-
Stage 2	597	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	349	777	-	-	1298	-
Mov Cap-2 Maneuver	349	-	-	-	-	-
Stage 1	781	-	-	-	-	-
Stage 2	575	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	648	1298	-
HCM Lane V/C Ratio	-	-	0.078	0.027	-
HCM Control Delay (s)	-	-	11	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	32	148	15	40	306
Future Vol, veh/h	1	32	148	15	40	306
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	37	170	17	46	352

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	623	179	0	0	187	0
Stage 1	179	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	450	864	-	-	1387	-
Stage 1	852	-	-	-	-	-
Stage 2	646	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	432	864	-	-	1387	-
Mov Cap-2 Maneuver	432	-	-	-	-	-
Stage 1	852	-	-	-	-	-
Stage 2	620	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	0.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	839	1387	-
HCM Lane V/C Ratio	-	-	0.045	0.033	-
HCM Control Delay (s)	-	-	9.5	7.7	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	11	13	134	211	70
Future Vol, veh/h	16	11	13	134	211	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	14	16	165	260	86

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	500	303	346	0	-	0
Stage 1	303	-	-	-	-	-
Stage 2	197	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	530	737	1213	-	-	-
Stage 1	749	-	-	-	-	-
Stage 2	836	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	522	737	1213	-	-	-
Mov Cap-2 Maneuver	522	-	-	-	-	-
Stage 1	738	-	-	-	-	-
Stage 2	836	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.4	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1213	-	592	-	-
HCM Lane V/C Ratio	0.013	-	0.056	-	-
HCM Control Delay (s)	8	0	11.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

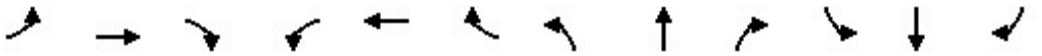
Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	43	105	0	26	198
Future Vol, veh/h	0	43	105	0	26	198
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	47	114	0	28	215

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	385	114	0	0	114	0
Stage 1	114	-	-	-	-	-
Stage 2	271	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	618	939	-	-	1475	-
Stage 1	911	-	-	-	-	-
Stage 2	775	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	604	939	-	-	1475	-
Mov Cap-2 Maneuver	604	-	-	-	-	-
Stage 1	911	-	-	-	-	-
Stage 2	758	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	0.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	939	1475	-
HCM Lane V/C Ratio	-	-	0.05	0.019	-
HCM Control Delay (s)	-	-	9	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	26	31	12	20	102	18	1889	16	111	1692	160
Future Volume (veh/h)	223	26	31	12	20	102	18	1889	16	111	1692	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	228	27	0	12	20	0	18	1928	16	113	1727	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	348	344		149	223		36	2004	892	128	2187	
Arrive On Green	0.18	0.18	0.00	0.18	0.18	0.00	0.02	0.56	0.56	0.07	0.62	0.00
Sat Flow, veh/h	1392	1870	0	489	1210	1585	1781	3554	1582	1781	3554	1585
Grp Volume(v), veh/h	228	27	0	32	0	0	18	1928	16	113	1727	0
Grp Sat Flow(s),veh/h/ln	1392	1870	0	1698	0	1585	1781	1777	1582	1781	1777	1585
Q Serve(g_s), s	11.7	1.0	0.0	0.0	0.0	0.0	0.8	43.1	0.4	5.2	30.3	0.0
Cycle Q Clear(g_c), s	12.9	1.0	0.0	1.2	0.0	0.0	0.8	43.1	0.4	5.2	30.3	0.0
Prop In Lane	1.00		0.00	0.37		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	348	344		372	0		36	2004	892	128	2187	
V/C Ratio(X)	0.65	0.08		0.09	0.00		0.49	0.96	0.02	0.88	0.79	
Avail Cap(c_a), veh/h	459	494		504	0		107	2004	892	128	2187	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.9	28.1	0.0	28.2	0.0	0.0	40.4	17.3	8.0	38.3	12.0	0.0
Incr Delay (d2), s/veh	2.1	0.1	0.0	0.1	0.0	0.0	10.0	13.0	0.0	45.7	3.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.4	0.0	0.5	0.0	0.0	0.5	18.3	0.1	3.8	10.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.0	28.2	0.0	28.3	0.0	0.0	50.4	30.3	8.0	84.0	15.0	0.0
LnGrp LOS	C	C		C	A		D	C	A	F	B	
Approach Vol, veh/h		255			32			1962			1840	
Approach Delay, s/veh		34.2			28.3			30.3			19.2	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	52.0		20.3	6.7	56.3		20.3				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	6.0	47.0		22.0	5.0	48.0		22.0				
Max Q Clear Time (g_c+I1), s	7.2	45.1		14.9	2.8	32.3		3.2				
Green Ext Time (p_c), s	0.0	1.7		0.4	0.0	11.0		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		25.5	
HCM 6th LOS		C	

Notes

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	23	64	44	16	50	42	1756	94	44	1547	106
Future Volume (veh/h)	118	23	64	44	16	50	42	1756	94	44	1547	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	24	0	46	17	0	44	1848	0	46	1628	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	279	204		204	61		76	2174		78	2178	
Arrive On Green	0.11	0.11	0.00	0.11	0.11	0.00	0.04	0.61	0.00	0.04	0.61	0.00
Sat Flow, veh/h	1396	1870	0	973	556	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	124	24	0	63	0	0	44	1848	0	46	1628	0
Grp Sat Flow(s),veh/h/ln	1396	1870	0	1530	0	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.5	0.7	0.0	1.6	0.0	0.0	1.5	26.8	0.0	1.6	20.8	0.0
Cycle Q Clear(g_c), s	4.8	0.7	0.0	2.3	0.0	0.0	1.5	26.8	0.0	1.6	20.8	0.0
Prop In Lane	1.00		0.00	0.73		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	279	204		265	0		76	2174		78	2178	
V/C Ratio(X)	0.44	0.12		0.24	0.00		0.58	0.85		0.59	0.75	
Avail Cap(c_a), veh/h	522	529		523	0		140	2343		140	2343	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.3	25.6	0.0	26.3	0.0	0.0	29.9	10.0	0.0	29.9	8.8	0.0
Incr Delay (d2), s/veh	1.1	0.3	0.0	0.5	0.0	0.0	6.9	3.0	0.0	6.9	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.3	0.0	0.9	0.0	0.0	0.8	8.2	0.0	0.8	6.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.4	25.9	0.0	26.7	0.0	0.0	36.8	13.0	0.0	36.8	10.1	0.0
LnGrp LOS	C	C		C	A		D	B		D	B	
Approach Vol, veh/h		148			63			1892			1674	
Approach Delay, s/veh		28.0			26.7			13.6			10.8	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.8	44.0		12.0	7.7	44.0		12.0
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	5.8	42.0		18.0	5.0	42.0		18.0
Max Q Clear Time (g_c+I1), s	3.6	28.8		6.8	3.5	22.8		4.3
Green Ext Time (p_c), s	0.0	10.2		0.3	0.0	12.0		0.2

Intersection Summary	
HCM 6th Ctrl Delay	13.1
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1467	89	25	1	45	270	21	169	1	391	110	1103
Future Volume (veh/h)	1467	89	25	1	45	270	21	169	1	391	110	1103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1595	97	27	1	49	293	23	184	1	425	120	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1707	696	194	4	206	704	41	266	1	483	356	
Arrive On Green	0.49	0.49	0.49	0.11	0.11	0.11	0.02	0.07	0.07	0.14	0.19	0.00
Sat Flow, veh/h	3456	1408	392	37	1831	2790	1781	3624	20	3456	1870	1585
Grp Volume(v), veh/h	1595	0	124	50	0	293	23	90	95	425	120	0
Grp Sat Flow(s),veh/h/ln	1728	0	1800	1868	0	1395	1781	1777	1867	1728	1870	1585
Q Serve(g_s), s	48.1	0.0	4.2	2.7	0.0	9.7	1.4	5.5	5.5	13.4	6.2	0.0
Cycle Q Clear(g_c), s	48.1	0.0	4.2	2.7	0.0	9.7	1.4	5.5	5.5	13.4	6.2	0.0
Prop In Lane	1.00		0.22	0.02		1.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	1707	0	889	210	0	704	41	130	137	483	356	
V/C Ratio(X)	0.93	0.00	0.14	0.24	0.00	0.42	0.56	0.69	0.69	0.88	0.34	
Avail Cap(c_a), veh/h	1806	0	940	303	0	842	80	288	303	498	489	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.4	0.0	15.3	44.9	0.0	34.7	53.7	50.2	50.2	46.8	38.9	0.0
Incr Delay (d2), s/veh	9.3	0.0	0.1	0.6	0.0	0.4	11.7	6.4	6.1	16.2	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.7	0.0	1.7	1.3	0.0	3.3	0.8	2.7	2.8	6.8	2.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.7	0.0	15.3	45.5	0.0	35.1	65.4	56.6	56.3	63.1	39.4	0.0
LnGrp LOS	D	A	B	D	A	D	E	E	E	E	D	
Approach Vol, veh/h		1719			343			208			545	
Approach Delay, s/veh		34.2			36.6			57.4			57.9	
Approach LOS		C			D			E			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	30.5	13.1		59.8	7.5	26.1		17.5
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s	16.6	18.0		58.0	5.0	29.0		18.0
Max Q Clear Time (g_c+I1), s	15.4	7.5		50.1	3.4	8.2		11.7
Green Ext Time (p_c), s	0.1	0.6		4.7	0.0	0.5		0.8

Intersection Summary		
HCM 6th Ctrl Delay		40.8
HCM 6th LOS		D

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	12.5
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	618	260	909	99
Demand Flow Rate, veh/h	630	265	927	101
Vehicles Circulating, veh/h	282	707	80	752
Vehicles Exiting, veh/h	571	300	832	220
Ped Vol Crossing Leg, #/h	7	0	1	1
Ped Cap Adj	0.999	1.000	1.000	1.000
Approach Delay, s/veh	12.0	11.0	13.9	7.6
Approach LOS	B	B	B	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	630	265	927	101
Cap Entry Lane, veh/h	1035	671	1272	641
Entry HV Adj Factor	0.980	0.980	0.981	0.983
Flow Entry, veh/h	618	260	909	99
Cap Entry, veh/h	1014	658	1247	630
V/C Ratio	0.609	0.395	0.729	0.158
Control Delay, s/veh	12.0	11.0	13.9	7.6
LOS	B	B	B	A
95th %tile Queue, veh	4	2	7	1



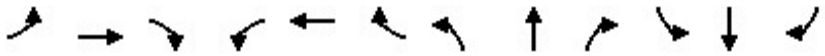
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	714	245	445	1021	249	414
Future Volume (veh/h)	714	245	445	1021	249	414
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	860	0	536	0	300	499
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	947		720		334	2216
Arrive On Green	0.27	0.00	0.38	0.00	0.19	0.62
Sat Flow, veh/h	3456	1585	1870	2790	1781	3647
Grp Volume(v), veh/h	860	0	536	0	300	499
Grp Sat Flow(s),veh/h/ln	1728	1585	1870	1395	1781	1777
Q Serve(g_s), s	23.5	0.0	24.2	0.0	16.1	6.0
Cycle Q Clear(g_c), s	23.5	0.0	24.2	0.0	16.1	6.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	947		720		334	2216
V/C Ratio(X)	0.91		0.74		0.90	0.23
Avail Cap(c_a), veh/h	1025		720		382	2216
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	0.0	25.9	0.0	38.8	8.1
Incr Delay (d2), s/veh	11.1	0.0	6.9	0.0	21.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.1	0.0	11.8	0.0	8.9	2.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.4	0.0	32.8	0.0	60.1	8.3
LnGrp LOS	D		C		E	A
Approach Vol, veh/h	860		536			799
Approach Delay, s/veh	45.4		32.8			27.8
Approach LOS	D		C			C

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	23.4	42.6				66.0	31.8
Change Period (Y+Rc), s	5.0	5.0				5.0	5.0
Max Green Setting (Gmax), s	21.6	35.0				61.0	29.0
Max Q Clear Time (g_c+I1), s	18.1	26.2				8.0	25.5
Green Ext Time (p_c), s	0.3	2.3				3.8	1.3

Intersection Summary	
HCM 6th Ctrl Delay	35.9
HCM 6th LOS	D

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	81	37	178	47	97	16	857	184	93	664	65
Future Volume (veh/h)	102	81	37	178	47	97	16	857	184	93	664	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	107	85	0	187	49	0	17	902	0	98	699	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	281	180		381	64		85	1079		417	1095	
Arrive On Green	0.20	0.20	0.00	0.20	0.20	0.00	0.59	0.59	0.00	0.59	0.59	0.00
Sat Flow, veh/h	805	892	0	1211	317	1585	11	1842	1585	618	1870	1585
Grp Volume(v), veh/h	192	0	0	236	0	0	919	0	0	98	699	0
Grp Sat Flow(s),veh/h/ln	1696	0	0	1528	0	1585	1854	0	1585	618	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	2.0	0.0	0.0	0.4	0.0	0.0	0.0	11.6	0.0
Cycle Q Clear(g_c), s	4.5	0.0	0.0	6.6	0.0	0.0	18.8	0.0	0.0	7.0	11.6	0.0
Prop In Lane	0.56		0.00	0.79		1.00	0.02		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	461	0		445	0		1164	0		417	1095	
V/C Ratio(X)	0.42	0.00		0.53	0.00		0.79	0.00		0.24	0.64	
Avail Cap(c_a), veh/h	742	0		699	0		1531	0		541	1473	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.8	0.0	0.0	17.5	0.0	0.0	7.9	0.0	0.0	5.5	6.4	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	1.0	0.0	0.0	2.1	0.0	0.0	0.3	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	0.0	2.3	0.0	0.0	5.2	0.0	0.0	0.4	3.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.4	0.0	0.0	18.5	0.0	0.0	10.0	0.0	0.0	5.8	7.1	0.0
LnGrp LOS	B	A		B	A		B	A		A	A	
Approach Vol, veh/h		192			236			919			797	
Approach Delay, s/veh		17.4			18.5			10.0			6.9	
Approach LOS		B			B			B			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	32.5	14.5	32.5	14.5
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	37.0	18.0	37.0	18.0
Max Q Clear Time (g_c+I1), s	20.8	6.5	13.6	8.6
Green Ext Time (p_c), s	6.7	0.8	6.3	0.9

Intersection Summary	
HCM 6th Ctrl Delay	10.5
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	88	972	7	117	767
Future Vol, veh/h	5	88	972	7	117	767
Conflicting Peds, #/hr	1	0	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	Yield	-	None
Storage Length	0	0	-	0	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	99	1092	8	131	862

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2220	1095	0	0	1095	0
Stage 1	1095	-	-	-	-	-
Stage 2	1125	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	48	260	-	-	637	-
Stage 1	321	-	-	-	-	-
Stage 2	310	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	38	259	-	-	635	-
Mov Cap-2 Maneuver	38	-	-	-	-	-
Stage 1	320	-	-	-	-	-
Stage 2	246	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	31.9	0	1.6
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	38	259	635	-
HCM Lane V/C Ratio	-	-	0.148	0.382	0.207	-
HCM Control Delay (s)	-	-	115.5	27.2	12.1	-
HCM Lane LOS	-	-	F	D	B	-
HCM 95th %tile Q(veh)	-	-	0.5	1.7	0.8	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	27	15	969	763	7
Future Vol, veh/h	6	27	15	969	763	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	33	18	1167	919	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2126	923	927	0	-	0
Stage 1	923	-	-	-	-	-
Stage 2	1203	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	55	327	737	-	-	-
Stage 1	387	-	-	-	-	-
Stage 2	284	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	54	327	737	-	-	-
Mov Cap-2 Maneuver	54	-	-	-	-	-
Stage 1	378	-	-	-	-	-
Stage 2	284	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	32.5	0.2	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	737	-	170	-	-
HCM Lane V/C Ratio	0.025	-	0.234	-	-
HCM Control Delay (s)	10	-	32.5	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	0.9	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	66	40	21	841	686	58
Future Vol, veh/h	66	40	21	841	686	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	78	47	25	989	807	68

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1880	841	875	0	-	0
Stage 1	841	-	-	-	-	-
Stage 2	1039	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	78	365	771	-	-	-
Stage 1	423	-	-	-	-	-
Stage 2	341	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 76	365	771	-	-	-
Mov Cap-2 Maneuver	204	-	-	-	-	-
Stage 1	409	-	-	-	-	-
Stage 2	341	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	34	0.2	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	771	-	245	-	-
HCM Lane V/C Ratio	0.032	-	0.509	-	-
HCM Control Delay (s)	9.8	-	34	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	2.6	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	133	720	0	166	559
Future Vol, veh/h	0	133	720	0	166	559
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	145	783	0	180	608

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1751	783	0	0	783	0
Stage 1	783	-	-	-	-	-
Stage 2	968	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	94	394	-	-	835	-
Stage 1	450	-	-	-	-	-
Stage 2	368	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	63	394	-	-	835	-
Mov Cap-2 Maneuver	63	-	-	-	-	-
Stage 1	450	-	-	-	-	-
Stage 2	248	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.3	0	2.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	394	835	-
HCM Lane V/C Ratio	-	-	0.367	0.216	-
HCM Control Delay (s)	-	-	19.3	10.5	0
HCM Lane LOS	-	-	C	B	A
HCM 95th %tile Q(veh)	-	-	1.7	0.8	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	85	6	6	637	469	91
Future Vol, veh/h	85	6	6	637	469	91
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	100	7	7	749	552	107

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1369	606	659	0	-	0
Stage 1	606	-	-	-	-	-
Stage 2	763	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	162	497	929	-	-	-
Stage 1	545	-	-	-	-	-
Stage 2	460	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	160	497	929	-	-	-
Mov Cap-2 Maneuver	160	-	-	-	-	-
Stage 1	538	-	-	-	-	-
Stage 2	460	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	58.7	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	929	-	167	-	-
HCM Lane V/C Ratio	0.008	-	0.641	-	-
HCM Control Delay (s)	8.9	0	58.7	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0	-	3.6	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	65	570	11	26	451
Future Vol, veh/h	13	65	570	11	26	451
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	79	695	13	32	550

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1317	703	0	0	709	0
Stage 1	703	-	-	-	-	-
Stage 2	614	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	174	438	-	-	890	-
Stage 1	491	-	-	-	-	-
Stage 2	540	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	165	438	-	-	889	-
Mov Cap-2 Maneuver	165	-	-	-	-	-
Stage 1	491	-	-	-	-	-
Stage 2	512	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.5	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	343	889	-
HCM Lane V/C Ratio	-	-	0.277	0.036	-
HCM Control Delay (s)	-	-	19.5	9.2	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.1	0.1	-

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	49	455	32	26	379
Future Vol, veh/h	1	49	455	32	26	379
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	61	569	40	33	474

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1129	589	0	0	609	0
Stage 1	589	-	-	-	-	-
Stage 2	540	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	226	508	-	-	970	-
Stage 1	554	-	-	-	-	-
Stage 2	584	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	216	508	-	-	970	-
Mov Cap-2 Maneuver	216	-	-	-	-	-
Stage 1	554	-	-	-	-	-
Stage 2	557	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.3	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	495	970	-
HCM Lane V/C Ratio	-	-	0.126	0.034	-
HCM Control Delay (s)	-	-	13.3	8.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	80	12	9	349	343	38
Future Vol, veh/h	80	12	9	349	343	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	100	15	11	436	429	48

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	911	453	477	0	-	0
Stage 1	453	-	-	-	-	-
Stage 2	458	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	304	607	1085	-	-	-
Stage 1	640	-	-	-	-	-
Stage 2	637	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	300	607	1085	-	-	-
Mov Cap-2 Maneuver	300	-	-	-	-	-
Stage 1	632	-	-	-	-	-
Stage 2	637	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.3	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1085	-	321	-	-
HCM Lane V/C Ratio	0.01	-	0.358	-	-
HCM Control Delay (s)	8.4	0	22.3	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	1.6	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	43	318	0	46	312
Future Vol, veh/h	0	43	318	0	46	312
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	47	346	0	50	339

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	785	346	0	0	346	0
Stage 1	346	-	-	-	-	-
Stage 2	439	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	361	697	-	-	1213	-
Stage 1	716	-	-	-	-	-
Stage 2	650	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	343	697	-	-	1213	-
Mov Cap-2 Maneuver	343	-	-	-	-	-
Stage 1	716	-	-	-	-	-
Stage 2	617	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	697	1213	-
HCM Lane V/C Ratio	-	-	0.067	0.041	-
HCM Control Delay (s)	-	-	10.5	8.1	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection	
Intersection Delay, s/veh	6.0
Intersection LOS	A

Approach	EB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	51	304	548
Demand Flow Rate, veh/h	52	311	558
Vehicles Circulating, veh/h	483	46	27
Vehicles Exiting, veh/h	102	489	330
Ped Vol Crossing Leg, #/h	7	0	0
Ped Cap Adj	0.999	1.000	1.000
Approach Delay, s/veh	5.0	4.8	6.7
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LR	LT	TR
Assumed Moves	LR	LT	TR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	52	311	558
Cap Entry Lane, veh/h	843	1317	1342
Entry HV Adj Factor	0.981	0.979	0.981
Flow Entry, veh/h	51	304	548
Cap Entry, veh/h	826	1289	1317
V/C Ratio	0.062	0.236	0.416
Control Delay, s/veh	5.0	4.8	6.7
LOS	A	A	A
95th %tile Queue, veh	0	1	2

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	39	5	22	239	408	64
Future Vol, veh/h	39	5	22	239	408	64
Conflicting Peds, #/hr	0	0	7	0	0	7
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	6	26	278	474	74

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	848	518	555	0	-	0
Stage 1	518	-	-	-	-	-
Stage 2	330	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	332	558	1015	-	-	-
Stage 1	598	-	-	-	-	-
Stage 2	728	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	319	554	1008	-	-	-
Mov Cap-2 Maneuver	435	-	-	-	-	-
Stage 1	578	-	-	-	-	-
Stage 2	723	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.1	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1008	-	446	-	-
HCM Lane V/C Ratio	0.025	-	0.115	-	-
HCM Control Delay (s)	8.7	-	14.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Approach	EB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	107	756	659
Demand Flow Rate, veh/h	109	771	672
Vehicles Circulating, veh/h	563	102	7
Vehicles Exiting, veh/h	116	570	866
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	6.2	10.7	7.7
Approach LOS	A	B	A

Lane	Left	Left	Left
Designated Moves	LR	LT	TR
Assumed Moves	LR	LT	TR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	109	771	672
Cap Entry Lane, veh/h	777	1244	1370
Entry HV Adj Factor	0.982	0.981	0.981
Flow Entry, veh/h	107	756	659
Cap Entry, veh/h	763	1219	1343
V/C Ratio	0.140	0.620	0.491
Control Delay, s/veh	6.2	10.7	7.7
LOS	A	B	A
95th %tile Queue, veh	0	5	3

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	66	40	21	841	686	58
Future Vol, veh/h	66	40	21	841	686	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	78	47	25	989	807	68

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1880	841	875	0	-	0
Stage 1	841	-	-	-	-	-
Stage 2	1039	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	78	365	771	-	-	-
Stage 1	423	-	-	-	-	-
Stage 2	341	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 76	365	771	-	-	-
Mov Cap-2 Maneuver	204	-	-	-	-	-
Stage 1	409	-	-	-	-	-
Stage 2	341	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	34	0.2	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	771	-	245	-	-
HCM Lane V/C Ratio	0.032	-	0.509	-	-
HCM Control Delay (s)	9.8	-	34	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	2.6	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

APPENDIX

X

CONSTRUCTION MANAGEMENT PLAN

Construction Management Plan (CMP)

Mākena Mauka

Kihei and Makena, Maui, Hawaii

June 2025

Prepared for

AREG AC Makena Propco LLC

Prepared by

SSFM International

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I. Introduction

Mākena Mauka is a low-density master-planned residential community that will offer market rate housing together with residential workforce housing, with a mixture of rural and single-family lots and multi-family residential units, within an area that has largely been planned for such uses for decades. The project will incorporate the existing 18-hole Mākena North Golf Course and the 18-hole Mākena South Golf Course (to be renovated as part of the land plan), together with a community gathering place, hiking trails, programs to support connectivity, walking, bicycling, and golf cart paths, beach parking for the public, areas reserved for conservation/open space, and areas reserved for public beach access. The Applicant's current vision for the Mākena Mauka land plan includes 652 housing units, including 109 onsite residential workforce housing units, and approximately 135,000 sf of operational support buildings, which include golf maintenance, staff offices, restaurants, back of house, golf operations and other uses; within the approximately 1,041.47-acre total project area which includes approximately 473 acres of parcels proposed for residential development. Future internal bicycle and pedestrian facilities are still being designed with the goal to connect to the existing bike lanes and sidewalk on the makai side of Makena Alanui Drive.

The project conceptual land use plan is provided in Figure 1. The project location map is provided in Figure 2. The project is expected to begin construction in 2028 and be completed by 2058. The project proposes the phased construction of a total of 652 residential units, inclusive of 109 onsite workforce housing units, 180 single-family market-value units, and 363 multi-family market-value by the year 2058.

The workforce housing will be completed in partnership with a third-party Affordable Developer. The workforce housing project will be completed pursuant to Chapter 2.96 of the Maui County Code or Ordinances. The 109 workforce housing units will be included in Phase I of the Future (2038) With Project analysis, which results in the highest number of trips in Phase I and will therefore reflect the more conservative analysis. The impact of the 109 workforce housing units will ultimately be the same at full buildout in 2058, regardless of the exact timeframe and buildout schedule. The remaining single-family market-value homes and multi-family market-value homes will be constructed equally over three 10-year periods (10, 20, and 30 years into the future). A total of 135,000 square feet of operational support buildings will also be developed in phases over 30 years.

As part of the special management area (SMA) permit application, a Construction Management Plan (CMP) has been prepared to satisfy the conditions within Ordinance No. 3613, which states, "The developer shall develop and submit a Transportation Management Plan ("TMP"), to be reviewed and approved by the State of Hawai'i Department of Transportation (HDOT), the Maui County Department of Public Works (Maui DPW), and the Maui County Department of Transportation (Maui DOT). The purpose of the TMP shall be to reduce traffic generated by construction activity related to the Mākena Resort Area. The TMP shall provide for programs such as park and ride, shuttles, and/or restrictions on worker access to ongoing construction activity during peak hour traffic. Upon approval, project contractors shall implement the TMP during construction activities. The developer shall submit an annual report to the HDOT, Maui DPW, Maui DOT, and the Maui County Council to document the success of the TMP in meeting its benchmarks of reducing traffic during project construction. The TMP shall be reviewed and approved by HDOT, Maui DPW, and Maui DOT prior to issuance of each SMA permit within the Mākena Resort Area."

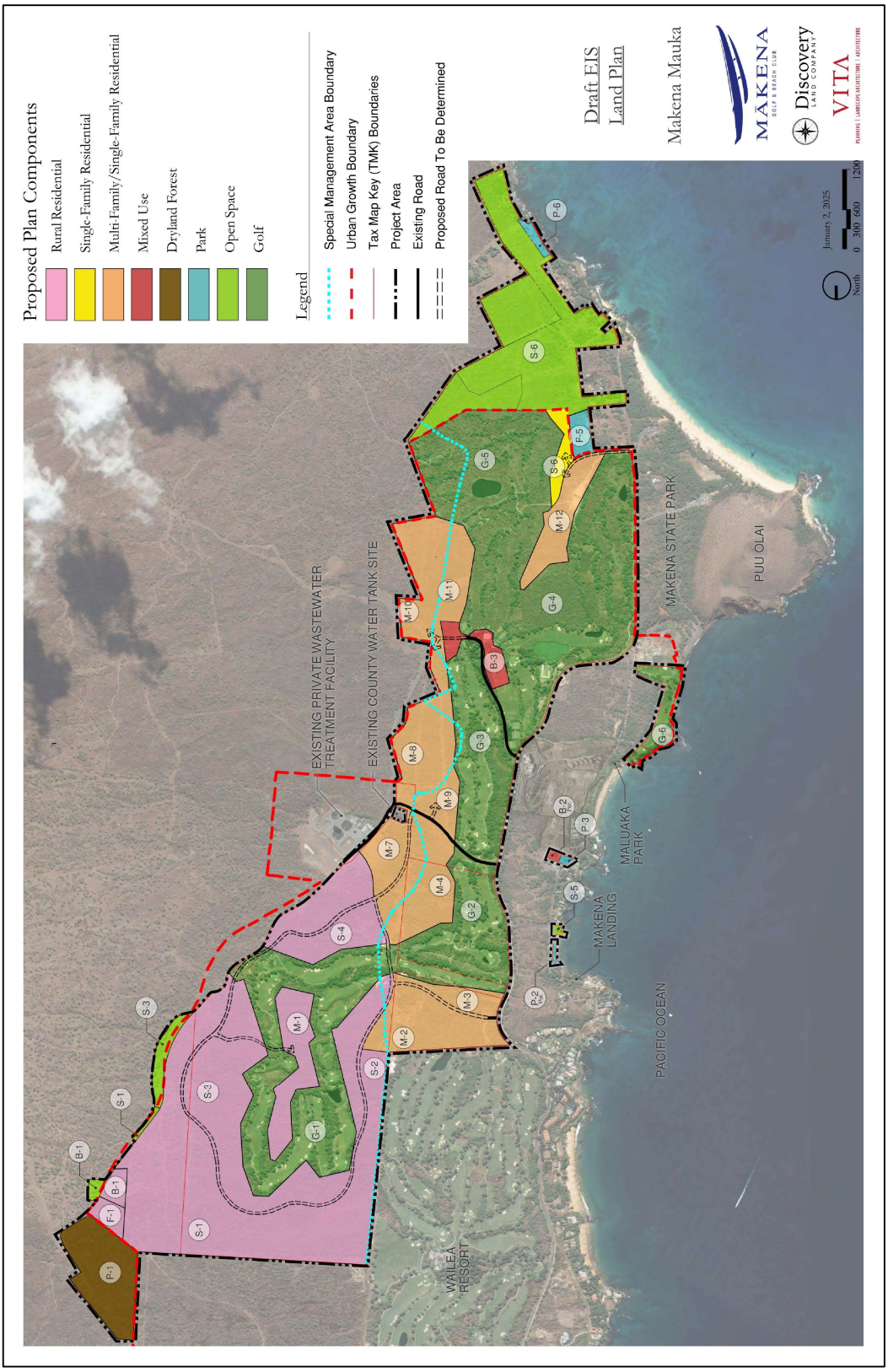

Figure 1: Conceptual Land Use Plan

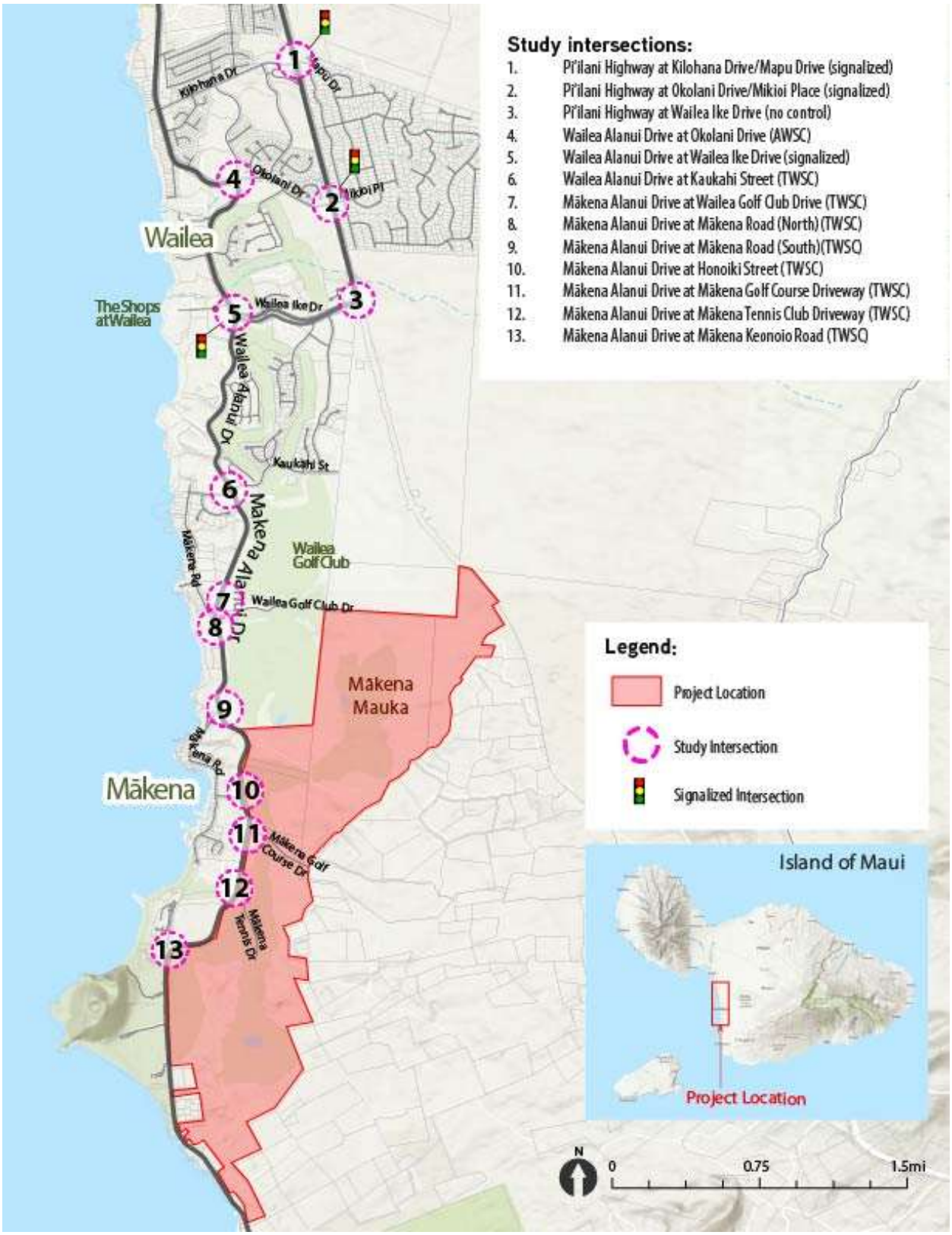

Figure 2: Project Location Map

II. Project Timeline

The project is currently proceeding through the environmental review application. A timeline and schedule for construction of the project is still being determined. The latest estimates for the project include:

- Site Plan Permit Application: September 2028
- Building Permit Application: March 2029
- Site Construction Completed: Year 2053
- Certificate of Occupancy: Year 2058

III. Existing Roadway Conditions

The project site is in Makena, Maui. The main routes to and from the project site include Piʻilani Highway, Wailea Ike Drive, Wailea Alanui Drive, and Makena Alanui Drive.

A. Piʻilani Highway

Piʻilani Highway (State Route 31) is a north-south oriented, two to four-lane, undivided state-owned roadway extending 7.3 miles from Mokulele Highway (State Route 311) and North Kihei Road, in the north, to Wailea Ike Drive in the south. Piʻilani Highway transitions into a two-lane roadway between Kilohana Drive and Wailea Ike Drive. The posted speed limit for the majority of Piʻilani Highway ranges from 35 miles per hour (MPH) to 45 MPH. Near the southern terminus at Wailea Ike Drive, the southbound speed limit is reduced to 20 MPH. Shoulder widths of six feet to ten feet exist on both sides of Piʻilani Highway. These shoulders are able to be used by cyclists as bike shoulders. At some signalized intersections with dedicated right turn lanes, the bike shoulder transitions into a marked bike lane located between the through lane and dedicated right turn lane.

B. Wailea Ike Drive

Wailea Ike Drive is an east-west oriented, two- to four-lane, County of Maui (COM)-owned, divided roadway extending from Wailea Alanui Drive in the west, to Piʻilani Highway in the east. Median widths vary from six feet near Piʻilani Highway to 100 feet near Wailea Alanui Drive. Wailea Ike Drive intersects Wailea Alanui Drive as a signalized intersection and intersects Piʻilani Highway as a two-lane, uncontrolled intersection where Wailea Ike Drive transitions into Piʻilani Highway at an approximately 90-degree turn. Sidewalks exist on both sides of Wailea Ike Drive. The posted speed limit on Wailea Ike Drive is 30 MPH.

C. Wailea Alanui Drive

Wailea Alanui Drive is a north-south oriented two- to four-lane, divided, COM-owned roadway extending from Kilohana Drive in the north, to Kaukahi Street in the south. In the project area, Wailea Alanui Drive is a four-lane divided roadway from Okolani Drive to Kaukahi Street. A continuous sidewalk exists only on the west side of Wailea Alanui Drive. The posted speed limit on Wailea Alanui Drive is 30 MPH.

D. Makena Alanui Drive

Makena Alanui Drive is a north-south oriented, two-lane, undivided, COM-owned roadway extending from Kaukahi Street in the north, to Makena Keonoio Road, where it transitions into Makena Road. Intersections along Makena Alanui Drive are stop-controlled. Makena Alanui Drive provides access through Makena Town. Sidewalks exist on portions of the west side of Makena Alanui Drive. Sidewalks are missing on segments just south of Makena Road (north), just south of Makena Road (south), and south of the Mākena Tennis Club Roadway. There are no sidewalks on the east side of Makena Alanui Drive. A signed and striped bike lane exists on both sides of Makena Alanui Drive from Kaukahi Street to the Mākena Tennis Club Driveway. The posted speed limit on Makena Alanui Drive is 20-30 MPH.

IV. Construction Management Plan

Construction of the development is anticipated to start in Quarter 4 of 2028 and is expected to be completed over three ten-year phases corresponding to years 2038, 2048, and 2058. Construction is anticipated to be limited to daytime working hours. Should night construction be needed, the contractor shall procure the appropriate noise permits before starting the work.

A. Vehicle Peak Hour

The Mākena Mauka traffic impact analysis report (TIAR) identified the existing AM and PM peak hours as occurring between 7:30 – 8:30 AM and 3:30 – 4:30 PM, respectively.

B. Haul Route

In accordance with the provisions of Ordinance No. 3613 from 2008, construction access is intended to be provided from Pi‘ilani Highway (via the future extension through the Wailea 670 project) to the construction sites within the Project area. The ordinance further states that construction traffic shall be prohibited along Kilohana Drive, Wailea Ike Drive, Wailea Alanui Drive, and Makena Alanui Drive to the extent practicable.

However, the availability of the Pi'ilani Highway extension, which at one time was intended to connect to the Project area, is not currently available due to the development delays of the Wailea 670 project, and therefore is not practicable. The Applicant does not own the rights-of-way for a construction access road from Pi'ilani Highway to the Project area. It is expected that the practicability of construction access roads from Pi’ilani Highway to construction sites within the Project area will be explored through negotiations with the neighboring landowners as part of the environmental review process. As this time, there are not feasible routes of access through the neighboring properties that would allow direct access.

Therefore, since the intended haul route from Ordinance 3616 is not practicable, the Applicant is in compliance with this Ordinance provision. The haul route is assumed to be along southbound on Pi‘ilani Highway, westbound on Wailea Ike Drive, southbound on Wailea Alanui Drive, and southbound onto Makena Alanui Drive. These transition into one of the four access roads (see Figure 3) into the project:

- The “North Access Road”, an existing gated roadway between Makena Road (South) and Honoiki Street,
- The Mākena Golf Course Road, currently located just south of Honoiki Street,
- The Mākena Tennis Club Driveway, currently located just south of Mākena Golf Course Road,
- and the “South Access Road”, which will be a new roadway intersecting Makena Alanui Drive across the existing Makena Beach Parking Lot.

C. Vehicle Access

Construction vehicle access to the project construction site will be provided from Makena Alanui Drive. Access to the project area will be provided from Makena Alanui Drive to one of the four access roads (see Figure 3), with an internal roadway network connecting to the individual communities within the project.

Construction workers will not be allowed to park on public roads. Construction workers are expected to park on-site.

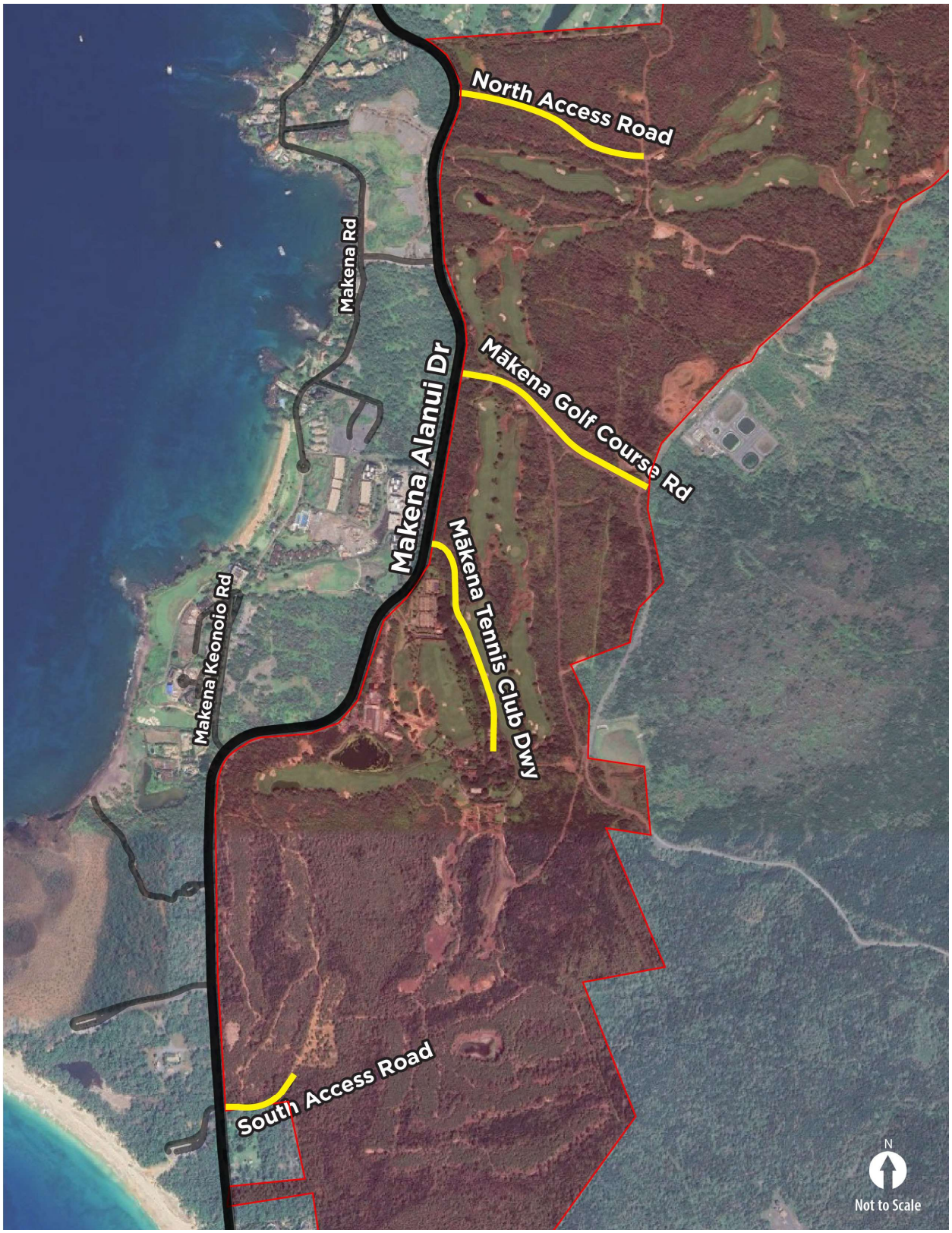

Figure 3: Project Access Roads

D. Heavy Vehicle Access

Heavy construction vehicles will need access to the site for deliveries to support various construction activities. These heavy vehicles will access the site during daylight non-peak periods from 8:30 AM to 3:30 PM. Construction-related deliveries are expected to change over the course of construction phasing. All loading and unloading of construction related materials will take place on-site. There is no existing on-street parking in the area. The parking for construction workers will also be provided on-site. To reduce traffic impacts, construction materials, fuel, supplies, and equipment will be delivered during off-peak hours. Heavy vehicles will be staged towards the mauka ends of M2 and M3 parcels (see Figure 1), which can be accessed through the "North Access Road".

Information regarding type of construction vehicles and number of construction vehicles are not known at this time. It is recommended that construction vehicles arrive and depart the project site outside of the commuter peak hours.

E. Noise

Heavy construction equipment and construction activities would be the primary source of noise during construction. Equipment mufflers or other noise attenuating equipment, as well as proper equipment maintenance, will be used during construction activities in order to mitigate potential impacts to ambient noise conditions in the vicinity.

All construction work will follow the State of Hawai‘i Department of Health (HDOH) noise regulations. Certain demolition and construction equipment (such as pile drivers, hydraulic hammers, jackhammers, etc.) will only be used from 9:00 AM to 5:30 PM, Monday through Friday. Contractors will be required to avoid sensitive areas and comply with the maximum allowable noise levels for stationary equipment established by Hawai‘i Administrative Rules (HAR), Chapter 11-46, "Community Noise Control". Should a community noise permit be required, a permit will be obtained prior to the commencement of construction.

F. Traffic Control Plan

Construction of the project is expected to happen entirely on-site, and it is not anticipated to impact any public right-of-way. A work zone is where construction work is taking place within the roadway. The work zone can be marked with signing, striping, cones, message boards, barriers, construction vehicles, and other devices. Road closures may be required during construction, such as pedestrian improvements pursuant to Ordinance 3613. Where needed, alternative routes or detour routes will be provided if vehicle, pedestrian, or bicycle facilities are impacted.

Off-site roadwork may include improvements at several study intersections identified in the *Mākena Mauka Draft Traffic Impact Analysis Report* (TIAR). If off-site roadwork is required, traffic control plans (TCPs) should be compliant with the *Manual on Uniform Traffic Control Devices* (*MUTCD) (FHWA, 2023)*, the latest *HDOT Section 645 – Work Zone Traffic Control* details, and *COM Street Design Manual* (COM, 2018) standards.

1. Traffic Control Strategies

Various traffic control strategies will be used to accommodate drivers within the work zone in a safe manner. Some of the traffic control strategies include:

- Single Lane Closure – Single lane closures will reduce roadway capacity but will allow for vehicles to generally travel on the same route.
- Construction hours – Limit construction hours to off-peak periods.
- Reduced Speed Limit – Reducing speed limits can help protect drivers and construction workers.
- Reduced Travel Lane Widths – Reduced travel lane width can help slow down driving speeds.
- Detour Route – Detour routes can be used if/when movements at vehicle movements, pedestrian facilities, and bike facilities are prohibited.

2. Traffic Control Devices

Various traffic control strategies will be used to accommodate drivers within the work zone in a safe manner. Some of the traffic control strategies include:

- Warning signs – *MUTCD* compliant temporary work zone signs will be installed prior to all work in accordance with the latest state standards. Spacing of the warning signs will be spaced based on the work zone speed limit. A flashing arrow board and message boards can be used to alert drivers of lane changes.
- Cones – Cones will be used to separate the work zone from travel lanes. Taper lengths, buffer lengths, cone spacing, and minimum lane width will follow the latest state standards based on the work zone speed limit.
- Police Officers – Police officers can be stationed at the near side and far side of the work zones.

3. Project Coordination

Any offsite roadwork should be coordinated with other projects in the area. For roadwork on Piʻilani Highway, Occupancy and Use of State Highway ROW permits must be filled out and completed on a weekly basis. For roadwork on COM-owned roadways, roadway permits from the Development Services Administration must be filled out two weeks prior to the start of work.

G. Transportation Demand Management

Transportation Demand Management (TDM) Strategies aim to reduce the construction related traffic.

1. Work Hours

It is recommended that construction workers have work hours that begin and end outside of the identified AM and PM peak hours.

2. Park and Ride and Shuttle Service

A centralized, off-site park-and-ride facility with shuttle service could be used to reduce vehicle traffic to the project where construction workers drive to a designated park-and-ride facility located outside of the project site. Workers can then be shuttled to the project site. There are two park-and-ride facilities outside of Kihei:

- Kahului Park-and-Ride
    - Located at the northwest corner of Kuihelani Highway (State Route 380) and Puʻunēnē Avenue, this park-and-ride can be used as a designated spot for workers living in Central Maui. This facility has 45 marked parking spaces, including four Americans with Disabilities Act (ADA) compliant parking spaces, bicycle and motorcycle parking.

- Ma‘alaea Park-and-Ride
    - Located just east of Honoapi‘ilani Highway on North Kihei Road, this park-and-ride can be used as a designated spot for workers living in West Maui. This facility has approximately 30 marked parking spaces, including two ADA compliant parking spaces.

3. Ridesharing and Carpooling

Ridesharing and carpooling should be used to help reduce vehicle traffic. A designated ridesharing and carpooling parking lot could be provided on-site.

4. Public Information and Outreach

The contractor and developer will provide information regarding the construction in a timely, accurate, and consistent manner to all the stakeholders, the general public, neighborhood residents and businesses, and the appropriate emergency entities upon request. The following materials will be used for Public Information and Outreach:

- Project Signage with contact information to field questions or concerns,
- Courtesy updates will be provided to local businesses and residents via email or posted notices, and
- A project website or hotline with updates on the construction schedule and any possible affected vehicle, pedestrian, or bike facilities.

H. Pre-Construction and Post-Construction Street Condition

A representative from the HDOT and Maui DPW should be invited to inspect the state-owned and COM-owned roadways with a contractor representative after construction. The contractor will be responsible for repairing construction-related wear and tear on the pavement by filling potholes, repaving or replacing damaged asphalt pavement, and replacing broken concrete on sidewalks in accordance with State and COM standard specifications.

V. CMP Management Monitoring During Construction

The contractor will monitor the effectiveness of the CMP strategies during work hours and will be responsible for issues or complaints. The contractor will coordinate with the Engineer and HDOT if adjustments are needed to the TMP. Modifications to shorten the work zone or work hours will be allowed. Modifications to lengthen the work zone or work hours will need to be coordinated with the Engineer and HDOT. The contractor shall coordinate with other ongoing and future projects in the project area. Any closures that extend beyond the hours proposed in the CMP or result in the closures of more than one travel lane will require a separate technical memorandum.

APPENDIX

TRANSPORTATION MANAGEMENT PLAN

X-1

Transportation Management Plan (TMP)

Mākena Mauka

Kihei and Makena, Maui, Hawaii

June 2025

Prepared for

AREG AC Mākena Propco LLC

Prepared by

SSFM International

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I. Introduction

Mākena Mauka is a low-density master-planned residential community that will offer market rate housing together with residential workforce housing, with a mixture of rural and single-family lots and multi-family residential units, within an area that has largely been planned for such uses for decades. The project will incorporate the existing 18-hole Mākena North Golf Course and the 18-hole Mākena South Golf Course (to be renovated as part of the land plan), together with a community gathering place, hiking trails, programs to support connectivity, walking, bicycling, and golf cart paths, beach parking for the public, areas reserved for conservation/open space, and areas reserved for public beach access.

The Applicant's current vision for the Mākena Mauka land plan includes 652 housing units, including 109 onsite residential workforce housing units, and approximately 135,000 sf of operational support buildings, which include golf maintenance, staff offices, restaurants, back of house, golf operations and other uses; within the approximately 1,041.47-acre total project area which includes approximately 473 acres of parcels proposed for residential development. The workforce housing is expected to be completed within the first 10 years of construction, with the remaining single-family homes and multi-family homes being constructed in equal amounts over three 10-year periods (10, 20, and 30 years into the future), aligning with years 2038, 2048, and 2058. Future internal bicycle and pedestrian facilities are still being designed with the goal to connect to the existing bike lanes and sidewalk on the west side of Makena Alanui Drive.

The project location map is provided in Figure 1. The project is expected to begin construction in 2028 and be completed by 2058. The project proposes the phased construction of a total of 652 residential units, inclusive of 109 onsite workforce housing units, 180 single-family market-value units, and 363 multi-family market-value units by the year 2058. The latest Land Plan included in the Draft Environmental Impact Statement (EIS) is shown in Figure 2. It is estimated that 90% of the market value homes will be used as second homes. These owners of second homes are expected to be at their residences two to three months of the year and not rent out their homes outside of that period.

The workforce housing will be completed in partnership with a third-party Affordable Developer. The workforce housing project will be completed pursuant to Chapter 2.96 of the Maui County Code or Ordinances. The 109 workforce housing units will be included in Phase I of the Future (2038) With Project analysis, which results in the highest number of trips in Phase I and will therefore reflect the more conservative analysis. The impact of the 109 workforce housing units will ultimately be the same at full buildout in 2058, regardless of the exact timeframe and buildout schedule. The remaining single-family market-value homes and multi-family market-value homes will be constructed equally over three 10-year periods (10, 20, and 30 years into the future). A recreational multi-use building, an operational multi-use building, and various other smaller buildings will be included in Phase 1.

As part of the special management area (SMA) permit application, a Transportation Management Plan (TMP) has been prepared to satisfy the conditions within Ordinance No. 3613, which states, "As part of the first SMA application, the developer shall submit a TMP to reduce the dependency on individual vehicular transportation modes. The TMP shall be reviewed and approved by the State Department of Transportation (HDOT), the County Department of Public Works (Maui DPW), and the County Department of Transportation (Maui DOT) to address post-construction traffic issues." The TMP is included in support of the Mākena Mauka Environmental Impact Statement (EIS).

This TMP documents the existing conditions and identifies future transportation requirements for the property. This TMP identifies Transportation Demand Management (TDM) strategies that promote a reduction in passenger vehicle trips in order to reduce the impact on surrounding streets.

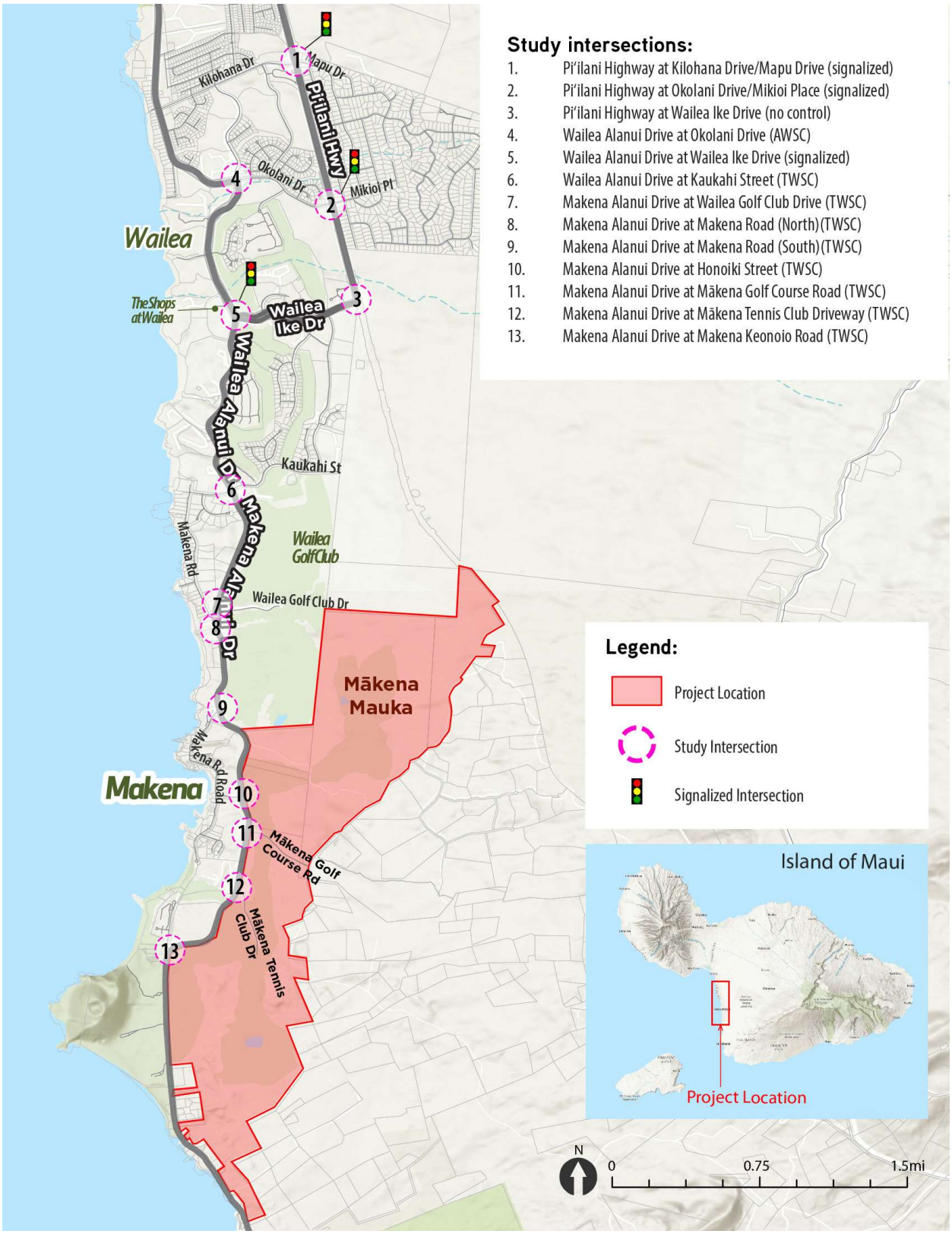

Figure 1: Project Location Map

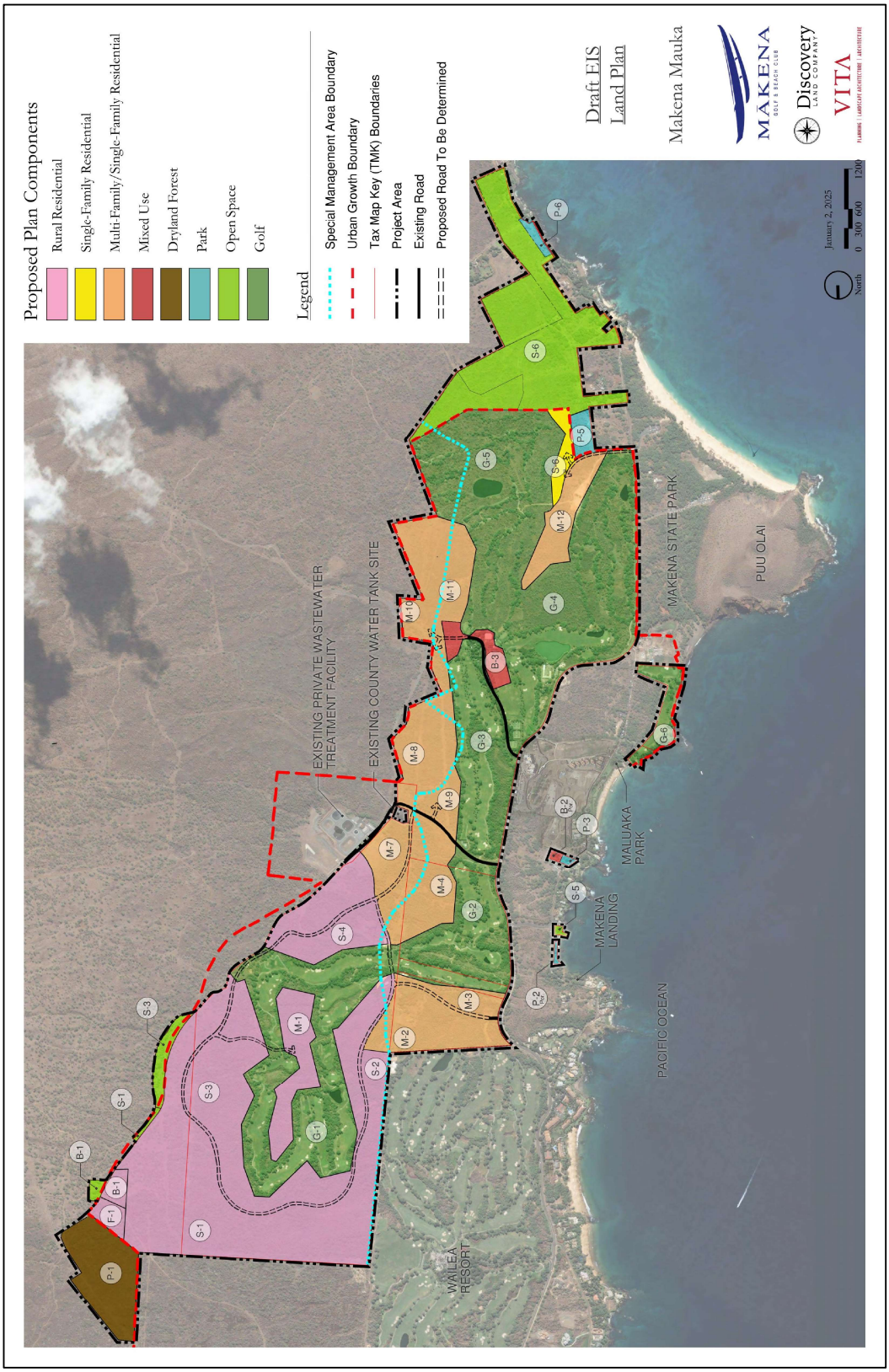

Figure 2: Project Land Plan

II. Existing Conditions

A. Existing Roadways

The major roadways in the project area include Piʻilani Highway, Wailea Ike Drive, Wailea Alanui Drive, and Makena Alanui Drive.

1. Piʻilani Highway

Piʻilani Highway (State Route 31) is a north-south oriented, two- to four-lane, undivided state-owned roadway extending 7.3 miles from Mokulele Highway (State Route 311) and North Kihei Road, in the north, to Wailea Ike Drive in the south. Piʻilani Highway transitions into a two-lane roadway between Kilohana Drive and Wailea Ike Drive. The posted speed limit for the majority of Piʻilani Highway ranges from 40 miles per hour (MPH) to 45 MPH. Near the southern terminus at Wailea Ike Drive, the southbound speed limit is reduced to 20 MPH. Shoulder widths of six to ten feet exist on both sides of Piʻilani Highway. These shoulders are able to be used by cyclists as bike shoulders. At some signalized intersections with dedicated right turn lanes, the bike shoulder transitions into a marked bike lane located between the through lane and dedicated right turn lane.

2. Wailea Ike Drive

Wailea Ike Drive is an east-west oriented, two- to four-lane, County of Maui (COM)-owned, divided roadway extending from Wailea Alanui Drive in the west, to Piʻilani Highway in the east. Median widths vary from six feet near Piʻilani Highway to 100 feet near Wailea Alanui Drive. Wailea Ike Drive intersects Wailea Alanui Drive as a signalized intersection and intersects Piʻilani Highway as a two-lane, uncontrolled intersection where Wailea Ike Drive transitions into Piʻilani Highway at an approximately 90-degree turn. Sidewalks exist on both sides of Wailea Ike Drive. The posted speed limit on Wailea Ike Drive is 30 MPH.

3. Wailea Alanui Drive

Wailea Alanui Drive is a north-south oriented two- to four-lane, divided, COM-owned roadway extending from Kilohana Drive in the north, to Kaukahi Street in the south. In the project area, Wailea Alanui Drive is a four-lane divided roadway from Okolani Drive to Kaukahi Street. A continuous sidewalk exists only on the west side of Wailea Alanui Drive. The posted speed limit on Wailea Alanui Drive is 30 MPH.

4. Makena Alanui Drive

Makena Alanui Drive is a north-south oriented, two-lane, undivided, COM-owned roadway extending from Kaukahi Street in the north, to Makena Keonoio Road, where it transitions into Makena Road. Intersections along Makena Alanui Drive are stop-controlled. Makena Alanui Drive provides access through Makena Town. Sidewalks exist on portions of the west side of Makena Alanui Drive. Sidewalks are missing on segments just south of Makena Road (north), just south of Makena Road (south), and south of the Mākena Golf Course Tennis Club Roadway. There are no sidewalks on the east side of Makena Alanui Drive. A signed and striped bike lane exists on both sides of Makena Alanui Drive from Kaukahi Street to the Mākena Golf Course Tennis Court Driveway. The posted speed limit on Makena Alanui Drive is 30 MPH.

B. Vehicle Peak Hour

Manual intersection turning movement traffic counts were taken at the study intersections during the commuter peak periods on Tuesday, May 9, 2024. From these, the existing peak hour was determined to be 7:30 – 8:30 AM and 3:30 – 4:30 PM.

C. Existing Pedestrian Facilities

Sidewalks exist on both sides of Wailea Ike Drive and on the west side of Wailea Alanui Drive. Sidewalks also exist on west side of Makena Alanui Drive from Kaukahi Street to the Mākena Tennis Courts Driveway, except for an approximate 650-foot segment just south of Mākena Road (South).

The existing pedestrian facilities are shown in Figure 3.

D. Existing Bike Facilities

Marked and signed bike lanes exist on Makena Alanui Drive from Kaukahi Street in the north to the Mākena Tennis Courts Driveway in the south. The existing bike facilities are shown in Figure 3.

E. Existing Transit Facilities

Maui Bus provides one bus route from Kahului to Wailea. Route 10 (Kihei Islander) provides access from Kahului Transit Center to Wailea Ike Drive in Wailea. The Kahului Transit Center was completed on November 20, 2024. Prior to the completion of the Kahului Transit Center, Route 10 stopped at Queen Ka‘ahumanu Shopping Center. A Route 10 bus leaves the Kahului Transit Center every hour from 5:30 AM to 7:30 PM. Route 10 takes two hours to complete a roundtrip beginning and ending at the Kahului Transit Center. There are two stops in the study area: westbound at Wailea Alanui Drive and Okolani Drive and eastbound at Wailea Alanui Drive and Wailea Ike Drive. A bench exists at both bus stops. The existing bus stops are shown in Figure 3.



Figure 3: Existing Pedestrian and Bicycle Facilities

III. Complete Streets

In 2012, the COM adopted Resolution 12-34, establishing a Complete Streets Policy for the County of Maui. Resolution 12-34 requires that, "all roadway projects, including, design, planning, reconstruction, rehabilitation, maintenance, or operations in the County of Maui be balanced and equitable in accommodating and encouraging travel by bicyclists, public transportation vehicles and their passengers, and pedestrians of all ages and abilities in accordance with Complete Streets principles"

The COM Street Design Manual is setup to implement Resolution 12-34 and to encourage the development of transportation facilities or projects that provide safe transportation for all modes and all users within the context of the surrounding community.

There are a few potential and known projects being planned and developed in the vicinity of Mākena Golf & Beach Club. Some of these projects have access off Makena Alanui Drive as it feeds the traffic to Wailea Alanui Drive and eventually to the Pi'ilani Highway. For this reason, Makena Alanui Drive can be categorized as Minor Collector Street, it also provides local access and area circulation.

The December 2018 COM Street Design Manual can be referenced for the COM streets in the public Right-of-Way (ROW). The COM Street Design Manual sets desired widths for different characteristics by Street Type and Surrounding Land Use. The typical cross section for a Minor Collector is shown in Figure 4 and includes the following elements:

- Vehicle Lane: 10-foot wide lanes
- Sidewalk: 6-foot wide sidewalk on both sides of the street
- Bike Lanes: 5-foot wide bike lanes on both sides of the street (Optional)
- Parking Lanes: 8-foot wide on both sides of the street. (Optional)

Figure 3-6: Minor Collector - Typical Cross Section (56-foot ROW)

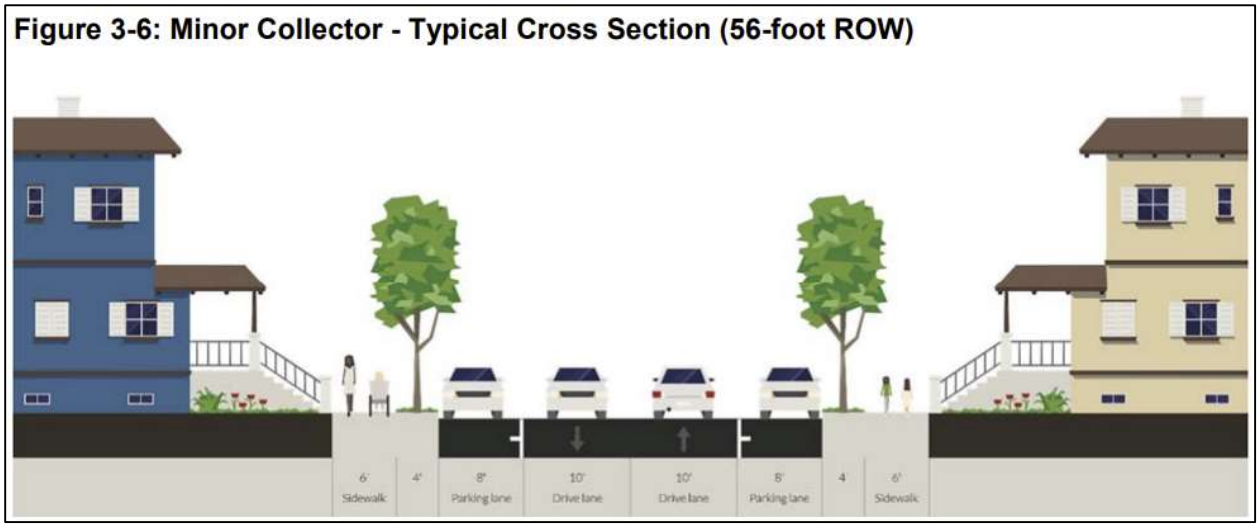

Figure 4: COM Street Design Manual – Minor Collector Typical Section

A. Vehicle Travel Lane

Per the COM Street Design Manual, ten-foot travel lanes are required for minor collectors. Twelve- to fourteen-foot travel lanes exist on Wailea Ike Drive, Wailea Alanui Drive, and Makena Alanui Drive. This meets the minimum ten-foot requirement.

B. Pedestrian Facilities

Per the COM Street Design Manual, six-foot wide sidewalks are required on both sides of the minor collector. A six-foot paved sidewalk existing on the west side of Makena Alanui Drive from Kaukahi Street to the Mākena Tennis Courts Driveway, except for an approximate 650-foot segment from Makena Road (South) approaching the Mākena Golf Course Driveway. There is no sidewalk on the east side of Makena Alanui Drive.

C. Bicycle Facilities

Per the COM Street Design Manual, five-foot wide bike lanes are optional. Six-foot wide bike lanes exist on both sides of Makena Alanui Road from Kaukahi Street to the Mākena Tennis Courts Driveway. There are no marked or signed bike facilities on Wailea Ike Drive or Wailea Alanui Drive.

D. Parking Facilities

Per the COM Street Design Manual, eight-foot wide marked parking lanes are optional. Marked on-street parking does not exist in the project area. There are no plans to include on-street parking.

IV. Future Conditions and Transportation Management Plan

Construction of the development is anticipated to start in Quarter 4 of 2028 and is expected to be completed and occupied in three 10-year phases by 2038, 2048, and 2058. Phase 1 will include all of the workforce housing units, a third of the market-value homes, a recreational multi-use building, an operational multi-use building, and various other smaller buildings. Phases 2 and 3 will include equal volumes of the remaining market value homes in each phase.

A. Future External Multimodal Facilities

Access to the project area will be provided from Makena Alanui Dive, with an internal roadway network connecting to the individual communities within the project. There are four planned vehicle access points to the project (see Figure 2) including:

- The “North Access Road”, an existing gated roadway between Makena Road (South) and Honoiki Street,
- The Mākena Golf Course Road, currently located just south of Honoiki Street,
- The Mākena Tennis Court Road, currently located just south of Mākena Golf Course Road,
- and the “South Access Road”, which will be a new roadway intersecting Makena Alanui Drive across the existing Mākena Beach Parking Lot.

The *Draft Mākena Mauka Traffic Impact Analysis Report* (TIAR) included recommendations to install refuge lanes for the Makena Road (South) and Honoiki Street approaches on Mākena Alanui Drive.

Ordinance 3613 states, “The developer shall provide pedestrian and bicycle access ways within the roadways throughout and fronting the Mākena Resort Area. A schematic plan for pedestrian and bicycle access ways throughout and fronting the Mākena Resort Area shall be submitted to the Department of Planning for consideration by the Maui Planning Commission in conjunction with SMA permit applications.” Mākena Mauka will commit to Ordinance 3613 and install the required improvements. Mākena Mauka is committed to a public beach shuttle connecting the on-site public parking to Maluaka Beach Park. Due to the inclusive amenity programs found within the confines of the Mākena Golf & Beach Club, residents have historically utilized golf carts to navigate their way around the project area. The

following strategies are proposed to provide connectivity and encourage the use of multi-modal transportation that may be incorporated by the project.

- Pedestrian connectivity
    - Construct a six-foot sidewalk on the west side of Makena Alanui Drive at Makena Road (South) the North Access Road to connect the existing sidewalks.
    - Construct a six-foot sidewalk on the east side of Makena Alanui Drive.
    - Construct a six-foot sidewalk on the east side of Wailea Alanui Drive.
- Bicycle connectivity
    - A five-foot bike lane on Wailea Alanui Drive connecting the existing bike lane on Makena Alanui Drive to Wailea Ike Drive.
- Transit
    - Coordinate with Maui Bus Service to seek their interest to expand Route #10 to extend into Makena.
    - Provide bus shelters and benches at existing and new bus stops in the Makena area
    - Commence operations of a public beach shuttle from the Mākena Mauka public parking areas to the nearby beaches.

The project construction is estimated to begin in 2028 with full operation in 2058. There is no specific timeline for implementation at this time. The corresponding improvements will be incrementally done over the project construction.

B. Future Internal Multimodal Facilities for Residents

Roberts Hawai‘i offers shuttles from Kahului Airport to 155 destinations, including hotels in Makena. Mākena Mauka can coordinate with Roberts Hawai‘i to get service from Kahului Airport to the project site. Homeowners will be encouraged to use walking, bicycle, and golf cart paths that are being planned on-site. A beach shuttle will be provided from two (2) internal parking areas to public beach parks in the Makena area. These alternatives will reduce vehicle trips.

Mākena Mauka is planning to reduce the use of private vehicles by providing a pedestrian-friendly layout, complete street designs for internal roadways, integrating a bike network, and creating pedestrian trails to connect to various destinations. A concierge program will offer on-demand shuttle and off-site travel coordination from public parking areas to nearby beaches.

C. Future Internal Multimodal Facilities for Employees and Staff

Employees and staff of Mākena Mauka will generate traffic. This section describes Transportation Demand Management (TDM) Strategies aimed to reduce the project related traffic impacts by employees and staff.

1. Park and Ride

A centralized, off-site park-and-ride facility with shuttle service could be used to reduce vehicle traffic to the project where construction workers drive to a designated park-and-ride facility located outside of the project site. Workers can then be shuttled to the project site. There are two park-and-ride facilities outside of Kihei:

- Kahului Park-and-Ride
    - Located at the northwest corner of Kuihelani Highway (State Route 380) and Pu‘unēnē Avenue, this park-and-ride can be used as a designated spot for workers living in Central

Maui. This facility has 45 marked parking spaces, including four Americans with Disabilities Act (ADA) compliant parking spaces, bicycle and motorcycle parking.

- Ma‘alaea Park-and-Ride
    - Located just east of Honoapi‘ilani Highway on North Kihei Road, this park-and-ride can be used as a designated spot for workers living in West Maui. This facility has approximately 30 marked parking spaces, including two ADA compliant parking spaces.

2. Work Hours

Employers can be encouraged to have flexible work hours that allow for employees to start and end their work shifts during non-peak hours. Staggering work hours allow for employees to start at different times, reducing the number of employees that travel to and from work during the same time periods.

3. Ridesharing and Carpooling

Ridesharing and carpooling should be used to help reduce vehicle traffic. A designated ridesharing and carpooling parking lot can be provided on-site. Ridesharing and carpooling can be incentivized by designating parking stalls or providing cheaper parking rates.

4. Shuttle Service

Shuttle service can be provided from Mākena Mauka to nearby bus stops, nearby destinations, or employee parking lots. Designated shuttle loading and unloading zones should be clearly identified on-site.

V. TMP Management Monitoring During Construction

The owner will monitor the effectiveness of the TMP and TDM strategies during work hours and will be responsible for issues or complaints. The owner will coordinate with the Engineer and HDOT if adjustments are needed to the TMP.

APPENDIX Y

ANALYSIS OF HAWAIʻI STATE PLAN

APPENDIX Y.

Analysis of Project Applicability to Hawai‘i State Plan

Chapter 226, Hawai‘i Revised Statues (HRS), also known as the Hawai‘i State Plan, is a long-range comprehensive plan which serves as a guide for the future long-term development of the State by identifying goals, objectives, policies, and priorities, as well as implementation mechanisms. The Plan consists of three (3) parts. Part I includes the Overall Theme, Goals, Objectives, and Policies; Part II includes Planning, Coordination, and Implementation; and Part III establishes Priority Guidelines. Inasmuch as Part II of the State Plan covers its administrative structure and implementation process, discussion of the Proposed Action's applicability to Part II is not appropriate. Below is an analysis of the project's applicability to Part I and Part III of the Hawai‘i State Plan.

The methodology for the analysis involves examining the project's applicability to the Hawai‘i State Plan's goals, objectives, and policies. "Applicability" refers to a project's need, purpose, and effects, and how these advance or promote a particular set of goals, objectives, and priority guidelines. In assessing the relationship between a proposed action and the Hawai‘i State Plan, an action may be categorized in one of the following groups:

1. **Directly applicable**: the action and its potential effects directly advance or promote the objective, policy, or priority guideline.

   Example: A county project to develop a new water source and related transmission facilities would be directly applicable to the objectives and policies for Facility Systems-Water (HRS 226-16) which states: *(5) Support water supply services to areas experiencing critical water problems.*

2. **Indirectly applicable**: the action and its potential effects indirectly support or advance the objective, policy, or priority guideline.

   Example: The county water source project cited above supports other related objectives and policies for the economy (HRS 226-6, General), which, by example, states: *(9) Strive to achieve a level of construction activity responsive to, and consistent with, state growth objectives.* In this case, the principle purpose of the project was not to create new construction activities, but nonetheless, supports this policy by creating temporary construction activity during the implementation of the project. In this instance, the proposed action may be deemed to be indirectly applicable to the objective and policy of the Hawai‘i State Plan.

3. **Not applicable**: the action and its potential effects have no direct or indirect relationship to the objectives and policies of the Hawai‘i State Plan.

Example: That same county water source improvement project referenced above, may not have direct or indirect linkage to objectives and policies for the economy-Federal Expenditures (HRS 226-9) which states: *(1) Encourage the sustained flow of federal expenditures in Hawaii that generates long-term government civilian employment*. From the standpoint of the agency proposing the water system improvement, and assuming no Federal Funding for the project, there is an unlikely intent that the proposed water source project would be connected to or reliant upon the foregoing policy. Hence, from the standpoint of judiciously applied policy analysis, the proposed action would be considered not applicable to the policy.

In general, a proposed action's applicability to the objectives, policies, and priority guidelines of the Hawai'i State Plan is judged on the basis of the action's direct or indirect relationship to the respective objectives, policies, and priority directions. It is recognized that the categorization of "applicability" is subject to interpretation and should be appropriately considered in the context of local and regional conditions.

Hawai'i State Plan, Chapter 226, HRS Part I. Overall Themes, Goals, Objectives and Policies **Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable**	**DA**	**IA**	**NA**
HRS 226-1: Findings and Purpose			
HRS 226-2: Definitions			
HRS 226-3: Overall Theme			
HRS 226-4: State Goals. In order to guarantee, for the present and future generations, those elements of choice and mobility that insure that individuals and groups may approach their desired levels of self-reliance and self-determination, it shall be the goal of the State to achieve: (1) A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawaii's present and future generations. (2) A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people. (3) Physical, social, and economic well-being, for individuals and families in Hawaii, that nourishes a sense of community responsibility, of caring, and of participation in community life.			
Analysis: **The Proposed Action supports the above-noted goal of the Hawai'i State Plan. The Proposed Action will create jobs and encourage spending, both in the short term for construction contractors and supplies, and in the long term with residents and employees. The Proposed Action seeks to support the population by providing resort-style residential accommodations. Through this development, the local economy will benefit from tourism, job creation, and additional spending.** **Furthermore, the Proposed Action has been designed with careful consideration given to community input obtained during the planning process, to complement and enhance existing development within the Makena Resort. Particular attention has been given to the placement of buildings during the design process to arrive at a plan that is believed to be both sensitive and place-appropriate to the surrounding community. A View Analysis, providing "before" and "after" perspectives of the proposed new community from public vantage points, has been prepared to demonstrate the low profile of the project and the maintenance of existing views and open space resources.** **As such, with mitigation measures outlined in the Environmental Impact Statement (EIS) document, including those set forth by land use entitlement conditions, there will be no**			

Hawai'i State Plan, Chapter 226, HRS Part I. Overall Themes, Goals, Objectives and Policies Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable	DA	IA	NA
significant adverse impacts on the physical, social, and economic well-being of the community with implementation of the Proposed Action.			
Chapter 226-5 Objective and Policies for Population			
Objective: It shall be the objective in planning for the State's population to guide population growth to be consistent with the achievement of physical, economic and social objectives contained in this chapter.	✓		
Policies:			
(1) Manage population growth statewide in a manner that provides increased opportunities for Hawaii's people to pursue their physical, social, and economic aspirations while recognizing the unique needs of each county.		✓	
(2) Encourage an increase in economic activities and employment opportunities on the neighbor islands consistent with community needs and desires.		✓	
(3) Promote increased opportunities for Hawaii's people to pursue their socio-economic aspirations throughout the islands.		✓	
(4) Encourage research activities and public awareness programs to foster an understanding of Hawaii's limited capacity to accommodate population needs and to address concerns resulting from an increase in Hawaii's population.			✓
(5) Encourage federal actions and coordination among major governmental agencies to promote a more balanced distribution of immigrants among the states, provided that such actions do not prevent the reunion of immediate family members.			✓
(6) Pursue an increase in federal assistance for states with a greater proportion of foreign immigrants relative to their state's population.			✓
(7) Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographic area.	✓		
Analysis: **The Proposed Action supports the objective and above-noted policies relating to population. The majority of residents of the proposed new master planned residential community are anticipated to be part-time residents on Maui. As such, there will not be a substantial increase in population with implementation of the Proposed Action. In addition, the project will be implemented in an area designated for growth by the Maui Island Plan (MIP) and will be developed concurrently with the infrastructure systems required to service the project. Technical reports for land and water resources have been conducted as part of the environmental review for the Proposed Action and have informed project plans and formulation of appropriate mitigation measures, in conjunction with community consultation.**			
Chapter 226-6 Objectives and policies for the economy – – in general			
Objectives: Planning for the State's economy in general shall be directed toward achievement of the following objectives:			
(1) Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawaii's people, while at the same time stimulating the development and expansion of economic activities capitalizing on defense, dual-use, and science and technology assets, particularly on the neighbor islands where employment opportunities may be limited.		✓	
(2) A steadily growing and diversified economic base that is not overly dependent on a few industries, and includes the development and expansion of industries		✓	

Hawai'i State Plan, Chapter 226, HRS Part I. Overall Themes, Goals, Objectives and Policies Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable	DA	IA	NA
on the neighbor islands.			
Policies:			
(1) Promote and encourage entrepreneurship within Hawaii by residents and nonresidents of the State.			✓
(2) Expand Hawaii's national and international marketing, communication, and organizational ties, to increase the State's capacity to adjust to and capitalize upon economic changes and opportunities occurring outside the State.			✓
(3) Promote Hawaii as an attractive market for environmentally and socially sound investment activities that benefit Hawaii's people.			✓
(4) Transform and maintain Hawaii as a place that welcomes and facilitates innovative activity that may lead to commercial opportunities.			✓
(5) Promote innovative activity that may pose initial risks, but ultimately contribute to the economy of Hawaii.			✓
(6) Seek broader outlets for new or expanded Hawaii business investments.			✓
(7) Expand existing markets and penetrate new markets for Hawaii's products and services.			✓
(8) Assure that the basic economic needs of Hawaii's people are maintained in the event of disruptions in overseas transportation.			✓
(9) Strive to achieve a level of construction activity responsive to, and consistent with, state growth objectives.		✓	
(10) Encourage the formation of cooperatives and other favorable marketing arrangements at the local or regional level to assist Hawaii's small scale producers, manufacturers, and distributors.			✓
(11) Encourage labor-intensive activities that are economically satisfying and which offer opportunities for upward mobility.		✓	
(12) Encourage innovative activities that may not be labor-intensive, but may otherwise contribute to the economy of Hawaii.			✓
(13) Foster greater cooperation and coordination between the government and private sectors in developing Hawaii's employment and economic growth opportunities.			✓
(14) Stimulate the development and expansion of economic activities which will benefit areas with substantial or expected employment problems.			✓
(15) Maintain acceptable working conditions and standards for Hawaii's workers.		✓	
(16) Provide equal employment opportunities for all segments of Hawaii's population through affirmative action and nondiscrimination measures.			✓
(17) Stimulate the development and expansion of economic activities capitalizing on defense, dual-use, and science and technology assets, particularly on the neighbor islands where employment opportunities may be limited.			✓
(18) Encourage businesses that have favorable financial multiplier effects within Hawaii's economy, particularly with respect to emerging industries in science and technology.			✓
(19) Promote and protect intangible resources in Hawaii, such as scenic beauty and the aloha spirit, which are vital to a healthy economy.		✓	

Hawai'i State Plan, Chapter 226, HRS Part I. Overall Themes, Goals, Objectives and Policies Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable	DA	IA	NA
(20) Increase effective communication between the educational community and the private sector to develop relevant curricula and training programs to meet future employment needs in general, and requirements of new or innovative potential growth industries in particular.			✓
(21) Foster a business climate in Hawaii--including attitudes, tax and regulatory policies, and financial and technical assistance programs-- that is conducive to the expansion of existing enterprises and the creation and attraction of new business and industry.			✓
Analysis: **The Proposed Action supports the objectives and above-noted policies relating to the economy in general. The construction of the proposed master planned residential community will result in short-term economic activity in terms of construction jobs and construction-related spending. The project's location in Makena will afford its residents the opportunity to live in an area known for its natural and scenic beauty. The project will include the development of 109 onsite workforce housing units, providing the opportunity for local families to live and work in the Makena community.**			
Chapter 226-7 Objectives and policies for the economy – – agriculture.			
Objectives: Planning for the State's economy with regard to agriculture shall be directed towards achievement of the following objectives:			
(1) Viability of Hawaii's sugar and pineapple industries.			✓
(2) Growth and development of diversified agriculture throughout the State.	✓		
(3) An agriculture industry that continues to constitute a dynamic and essential component of Hawaii's strategic, economic, and social well-being.			✓
Policies:			
(1) Establish a clear direction for Hawaii's agriculture through stakeholder commitment and advocacy.			✓
(2) Encourage agriculture by making the best use of natural resources.			✓
(3) Provide the governor and the legislature with information and options needed for prudent decision-making for the development of agriculture.			✓
(4) Establish strong relationships between the agricultural and visitor industries for mutual marketing benefits.			✓
(5) Foster increased public awareness and understanding of the contributions and benefits of agriculture as a major sector of Hawaii's economy.			✓
(6) Seek the enactment and retention of federal and state legislation that benefits Hawaii's agricultural industries.			✓
(7) Strengthen diversified agriculture by developing an effective promotion, marketing, and distribution system between Hawaii's food producers and consumers in the State, nation, and world.			✓
(8) Support research and development activities that strengthen economic productivity in agriculture, stimulate greater efficiency, and enhance the development of new products and agricultural by-products.			✓
(9) Enhance agricultural growth by providing public incentives and encouraging private initiatives.			✓

Hawai'i State Plan, Chapter 226, HRS Part I. Overall Themes, Goals, Objectives and Policies Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable	DA	IA	NA
(10) Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs.			✓
(11) Increase the attractiveness and opportunities for an agricultural education and livelihood.			✓
(12) In addition to the State's priority on food, expand Hawaii's agricultural base by promoting growth and development of flowers, tropical fruits and plants, livestock, feed grains, forestry, food crops, aquaculture, and other potential enterprises.			✓
(13) Promote economically competitive activities that increase Hawaii's agricultural self-sufficiency, including the increased purchase and use of Hawaii-grown food and food products by residents, businesses, and governmental bodies as defined under section 103D-104.			✓
(14) Promote and assist in the establishment of sound financial programs for diversified agriculture.			✓
(15) Institute and support programs and activities to assist the entry of displaced agricultural workers into alternative agricultural or other employment.			✓
(16) Facilitate the transition of agricultural lands in economically nonfeasible agricultural production to economically viable agricultural uses.			✓
(17) Perpetuate, promote, and increase use of traditional Hawaiian farming systems, such as the use of loko i'a, māla, and irrigated lo'i, and growth of traditional Hawaiian crops, such as kalo, 'uala, and 'ulu.	✓		
(18) Increase and develop small-scale farms.	✓		
***An*alysis: The Proposed Action supports the above-noted objective and policies relating to agriculture. The proposed land plan incorporates the Nāulu Farm, a non-commercial 2-acre farm operated by the Applicant's 'Ōiwi Resources Stewardship Department. Operations include an animal farm, a greenhouse dedicated to cultivating native species, a vegetable and fruit garden, an aquaponics system, and educational programs. The greenhouse propagates native species for replanting areas in the project site. The farm's operations are subsidized by a portion of the homeowners' association fees.**			
Chapter 226-8 Objective and policies for the economy – – visitor industry.			
Objective: Planning for the State's economy with regard to the visitor industry shall be directed towards the achievement of the objective of a visitor industry that constitutes a major component of steady growth for Hawaii's economy.			✓
Policies:			
(1) Support and assist in the promotion of Hawaii's visitor attractions and facilities.			✓
(2) Ensure that visitor industry activities are in keeping with the social, economic, and physical needs and aspirations of Hawaii's people.			✓
(3) Improve the quality of existing visitor destination areas by utilizing Hawaii's strengths in science and technology.			✓
(4) Encourage cooperation and coordination between the government and private sectors in developing and maintaining well-designed, adequately serviced visitor industry and related developments which are sensitive to neighboring communities and activities.			✓

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(5) Develop the industry in a manner that will continue to provide new job opportunities and steady employment for Hawaii's people.			✓
(6) Provide opportunities for Hawaii's people to obtain job training and education that will allow for upward mobility within the visitor industry.			✓
(7) Foster a recognition of the contribution of the visitor industry to Hawaii's economy and the need to perpetuate the aloha spirit.			✓
(8) Foster an understanding by visitors of the aloha spirit and of the unique and sensitive character of Hawaii's cultures and values.			✓
Analysis: **The Proposed Action is not applicable to the objective and policies related to the visitor industry.**			
Chapter 226-9 Objective and policies for the economy – – federal expenditures.			
Objective: Planning for the State's economy with regard to federal expenditures shall be directed towards achievement of the objective of a stable federal investment base as an integral component of Hawaii's economy.			✓
Policies:			
(1) Encourage the sustained flow of federal expenditures in Hawaii that generates long-term government civilian employment;			✓
(2) Promote Hawaii's supportive role in national defense, in a manner consistent with Hawaii's social, environmental, and cultural goals by building upon dual-use and defense applications to develop thriving ocean engineering, aerospace research and development, and related dual-use technology sectors in Hawaii's economy;			✓
(3) Promote the development of federally supported activities in Hawaii that respect statewide economic concerns, are sensitive to community needs, and minimize adverse impacts on Hawaii's environment;			✓
(4) Increase opportunities for entry and advancement of Hawaii's people into federal government service;			✓
(5) Promote federal use of local commodities, services, and facilities available in Hawaii;			✓
(6) Strengthen federal-state-county communication and coordination in all federal activities that affect Hawaii; and			✓
(7) Pursue the return of federally controlled lands in Hawaii that are not required for either the defense of the nation or for other purposes of national importance, and promote the mutually beneficial exchanges of land between federal agencies, the State, and the counties.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above objective and policies related to federal expenditures.**			
Chapter 226-10 Objective and policies for the economy – – potential growth and innovative activities.			
Objective: Planning for the State's economy with regard to potential growth and innovative activities shall be directed towards achievement of the objective of development and expansion of potential growth and innovative activities that serve to increase and diversify Hawaii's economic base.			✓
Policies:			

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(1) Facilitate investment and employment growth in economic activities that have the potential to expand and diversify Hawaii's economy, including but not limited to diversified agriculture, aquaculture, renewable energy development, creative media, health care, and science and technology-based sectors;			✓
(2) Facilitate investment in innovative activity that may pose risks or be less labor-intensive than other traditional business activity, but if successful, will generate revenue in Hawaii through the export of services or products or substitution of imported services or products;			✓
(3) Encourage entrepreneurship in innovative activity by academic researchers and instructors who may not have the background, skill, or initial inclination to commercially exploit their discoveries or achievements;			✓
(4) Recognize that innovative activity is not exclusively dependent upon individuals with advanced formal education, but that many self-taught, motivated individuals are able, willing, sufficiently knowledgeable, and equipped with the attitude necessary to undertake innovative activity;			✓
(5) Increase the opportunities for investors in innovative activity and talent engaged in innovative activity to personally meet and interact at cultural, art, entertainment, culinary, athletic, or visitor-oriented events without a business focus;			✓
(6) Expand Hawaii's capacity to attract and service international programs and activities that generate employment for Hawaii's people;			✓
(7) Enhance and promote Hawaii's role as a center for international relations, trade, finance, services, technology, education, culture, and the arts;			✓
(8) Accelerate research and development of new energy-related industries based on wind, solar, ocean, underground resources, and solid waste;			✓
(9) Promote Hawaii's geographic, environmental, social, and technological advantages to attract new or innovative economic activities into the State;			✓
(10) Provide public incentives and encourage private initiative to attract new or innovative industries that best support Hawaii's social, economic, physical, and environmental objectives;			✓
(11) Increase research and the development of ocean-related economic activities such as mining, food production, and scientific research;			✓
(12) Develop, promote, and support research and educational and training programs that will enhance Hawaii's ability to attract and develop economic activities of benefit to Hawaii;			✓
(13) Foster a broader public recognition and understanding of the potential benefits of new or innovative growth-oriented industry in Hawaii;			✓
(14) Encourage the development and implementation of joint federal and state initiatives to attract federal programs and projects that will support Hawaii's social, economic, physical, and environmental objectives;			✓
(15) Increase research and development of businesses and services in the telecommunications and information industries;			✓
(16) Foster the research and development of nonfossil fuel and energy efficient modes of transportation; and			✓
(17) Recognize and promote health care and health care information technology			✓

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as growth industries.			
Analysis: **The Proposed Action is not directly or indirectly applicable to the above objective and policies related to potential growth and innovative activities.**			
Chapter 226-10.5 Objectives and policies for the economy – – information industry.			
Objective: Planning for the State's economy with regard to telecommunications and information technology shall be directed toward recognizing that broadband and wireless communication capability and infrastructure are foundations for an innovative economy and positioning Hawaii as a leader in broadband and wireless communications and applications in the Pacific Region.			✓
Policies:			
(1) Promote efforts to attain the highest speeds of electronic and wireless communication within Hawaii and between Hawaii and the world, and make high speed communication available to all residents and businesses in Hawaii;			✓
(2) Encourage the continued development and expansion of the telecommunications infrastructure serving Hawaii to accommodate future growth and innovation in Hawaii's economy;			✓
(3) Facilitate the development of new or innovative business and service ventures in the information industry which will provide employment opportunities for the people of Hawaii;			✓
(4) Encourage mainland- and foreign-based companies of all sizes, whether information technology-focused or not, to allow their principals, employees, or contractors to live in and work from Hawaii, using technology to communicate with their headquarters, offices, or customers located out-of-state;			✓
(5) Encourage greater cooperation between the public and private sectors in developing and maintaining a well-designed information industry;			✓
(6) Ensure that the development of new businesses and services in the industry are in keeping with the social, economic, and physical needs and aspirations of Hawaii's people;			✓
(7) Provide opportunities for Hawaii's people to obtain job training and education that will allow for upward mobility within the information industry;			✓
(8) Foster a recognition of the contribution of the information industry to Hawaii's economy; and			✓
(9) Assist in the promotion of Hawaii as a broker, creator, and processor of information in the Pacific.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above objective and policies related to telecommunications and information technology.**			
Chapter 226-11 Objectives and policies for the physical environment – – land based, shoreline, and marine resources.			
Objectives: Planning for the State's physical environment with regard to land-based, shoreline, and marine resources shall be directed towards achievement of the following objectives:			
(1) Prudent use of Hawaii's land-based, shoreline, and marine resources.	✓		
(2) Effective protection of Hawaii's unique and fragile environmental resources.	✓		
Policies:			

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(1) Exercise an overall conservation ethic in the use of Hawaii's natural resources.	✓		
(2) Ensure compatibility between land-based and water-based activities and natural resources and ecological systems.		✓	
(3) Take into account the physical attributes of areas when planning and designing activities and facilities.	✓		
(4) Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage.		✓	
(5) Consider multiple uses in watershed areas, provided such uses do not detrimentally affect water quality and recharge functions.		✓	
(6) Encourage the protection of rare or endangered plant and animal species and habitats native to Hawaii.	✓		
(7) Provide public incentives that encourage private actions to protect significant natural resources from degradation or unnecessary depletion.			✓
(8) Pursue compatible relationships among activities, facilities, and natural resources.	✓		
(9) Promote increased accessibility and prudent use of inland and shoreline areas for public recreational, educational, and scientific purposes.	✓		
Analysis: **The Proposed Action supports the above-noted objective and policies relating to land-based, shoreline, and marine resources. The Proposed Action has been designed to respect existing topography to the extent practicable in order to minimize cut and fill activity and potential grading-related impacts on the land. In addition, a comprehensive program of Best Management Practices (BMPs) and Low-Impact Development (LID) techniques will be used to minimize construction-related impacts and stormwater runoff. Furthermore, portions of the overall land plan are proposed to be left in their current undeveloped state with the aim of preserving native dryland forest habitats so as to not disrupt natural processes and environs. In addition, open space areas within the project area will be preserved and portions of these areas will be made accessible through hiking trails. Lastly, pursuant to conditions attached to the land use entitlement approvals for the Proposed Action, the Applicant will continue to maintain the Makena Landing and Maluaka beach parks, and construct additional beach parking stalls in the area.**			
Chapter 226-12 Objective and policies for the physical environment – – scenic, natural beauty, and historic resources.			
Objective: Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawaii's scenic assets, natural beauty, and multi-cultural/historical resources.	✓		
Policies:			
(1) Promote the preservation and restoration of significant natural and historic resources.	✓		
(2) Provide incentives to maintain and enhance historic, cultural, and scenic amenities.			✓
(3) Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.	✓		
(4) Protect those special areas, structures, and elements that are an integral and functional part of Hawaii's ethnic and cultural heritage.	✓		

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(5) Encourage the design of developments and activities that complement the natural beauty of the islands.	✓		
Analysis: **The Proposed Action supports the objective and above-noted policies relating to scenic, natural, and historic resources. An Archaeological Literature Review and Surface Survey (ALRSS) was carried out as part of the environmental review process to identify and properly document any significant historic or cultural sites within the project area. Through this process, a program of avoidance, preservation, and monitoring was recommended and will be adhered to in order to ensure that the identified historic resources will not be negatively impacted by the Proposed Action. In addition, a Cultural Impact Assessment (CIA) was carried out to ensure that any potential impacts on cultural practices or resources within or in vicinity of the project site are appropriately mitigated.** **In addition, the Proposed Action has been designed with careful consideration given to community input obtained during the planning process, to complement and enhance existing development within the Makena Resort. Particular attention has been given to the placement of buildings during the design process to arrive at a plan that is believed to be both sensitive and place appropriate to the surrounding community. A View Analysis, providing "before" and "after" perspectives of the proposed new community from public vantage points, has been prepared to demonstrate the low profile of the project and the preservation of scenic and open space resources. A dryland forest ecosystem within the project area will also be preserved as part of the Proposed Action.**			
Chapter 226-13 Objectives and policies for the physical environment – – land, air, and water quality.			
Objectives: Planning for the State's physical environment with regard to land, air, and water quality shall be directed towards achievement of the following objectives.			
(1) Maintenance and pursuit of improved quality in Hawaii's land, air, and water resources.	✓		
(2) Greater public awareness and appreciation of Hawaii's environmental resources.	✓		
Policies:			
(1) Foster educational activities that promote a better understanding of Hawaii's limited environmental resources.		✓	
(2) Promote the proper management of Hawaii's land and water resources.		✓	
(3) Promote effective measures to achieve desired quality in Hawaii's surface, ground, and coastal waters.		✓	
(4) Encourage actions to maintain or improve aural and air quality levels to enhance the health and well-being of Hawaii's people.	✓		
(5) Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.		✓	
(6) Encourage design and construction practices that enhance the physical qualities of Hawaii's communities.		✓	
(7) Encourage urban developments in close proximity to existing services and facilities.	✓		
(8) Foster recognition of the importance and value of the land, air, and water resources to Hawaii's people, their cultures and visitors.	✓		

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Analysis: The Proposed Action supports the above-noted objective and policies relating to land, air, and water quality. The project will be implemented in an area designated for growth by the MIP and developed consistent with infrastructure systems to service the project. In addition, the project's location, mostly mauka of Makena Alanui Road, places the proposed development components outside of the tsunami evacuation zone, flood hazard zones, and the projected 3.2-foot sea-level rise hazard area. Although a portion of the land plan located along the shoreline does lie within these areas, no vertical development is planned to occur within this area. Furthermore, as part of the environmental review process, studies relative to air quality, noise, and nearshore marine water quality were carried out. Based on the impact assessment of the project on these resources in Chapter II of the EIS, with the implementation of the proposed mitigation measures, as applicable, the Proposed Action is not expected to result in significant adverse environmental impacts.			
Chapter 226-14 Objective and policies for facility systems – – in general.			
Objective: Planning for the State's facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives.	✓		
Policies:			
(1) Accommodate the needs of Hawaii's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.			✓
(2) Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.			✓
(3) Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user.	✓		
(4) Pursue alternative methods of financing programs and projects and cost-saving techniques in the planning, construction, and maintenance of facility systems.			✓
Analysis: **The Proposed Action is directly applicable to the above-noted objective and policy related to facility systems in general. The Preliminary Engineering Report (PER) was prepared to ensure that the Proposed Action would not burden facility systems.**			
Chapter 226-15 Objectives and policies for facility systems – – solid and liquid waste.			
Objectives: Planning for the State's facility systems with regard to solid and liquid wastes shall be directed towards the achievement of the following objectives:			
(1) Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes.		✓	
(2) Provision of adequate sewerage facilities for physical and economic activities that alleviate problems in housing, employment, mobility, and other areas.		✓	
Policies:			
(1) Encourage the adequate development of sewerage facilities that complement planned growth.		✓	
(2) Promote re-use and recycling to reduce solid and liquid wastes and employ a conservation ethic.		✓	
(3) Promote research to develop more efficient and economical treatment and			✓

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disposal of solid and liquid wastes.			
Analysis: **The Proposed Action supports the objectives and above-noted policies relating to solid and liquid waste. The Proposed Action will be serviced by the existing, privately-owned and maintained Makena Wastewater Treatment Facility, which has adequate wastewater capacity to serve the projected demand generated by the project. In addition, solid waste generated by the project's uses will be collected by a private refuse service provider and disposed at the Central Maui Landfill. In addition, recycle bins/facilities will be located throughout the proposed new community to divert solid waste from landfill disposal.**			
Chapter 226-16 Objective and policies for facility systems – – water.			
Objective: Planning for the State's facility systems with regard to water shall be directed towards achievement of the objective of the provision of water to adequately accommodate domestic, agricultural, commercial, industrial, recreational, and other needs within resource capacities.	✓		
Policies:			
(1) Coordinate development of land use activities with existing and potential water supply.	✓		
(2) Support research and development of alternative methods to meet future water requirements well in advance of anticipated needs.			✓
(3) Reclaim and encourage the productive use of runoff water and wastewater discharges.	✓		
(4) Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use.			✓
(5) Support water supply services to areas experiencing critical water problems.			✓
(6) Promote water conservation programs and practices in government, private industry, and the general public to help ensure adequate water to meet long-term needs.		✓	
Analysis: **The Proposed Action supports the objective and above-noted policies relating to water. As discussed in Chapter II of the EIS, new private groundwater wells will be developed to provide the necessary drinking water for the proposed market units. Use of these wells will limit use of the County's Central Maui water system to the workforce housing units. Water conservation measures will be implemented throughout the new community in line with the guiding sustainability principles for the project.**			
Chapter 226-17 Objectives and policies for facility systems – – transportation.			
Objectives: Planning for the State's facility systems with regard to transportation shall be directed towards the achievement of the following objectives:			
(1) An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods.	✓		
(2) A statewide transportation system that is consistent with and will accommodate planned growth objectives throughout the State.		✓	
Policies:			
(1) Design, program, and develop a multi-modal system in conformance with desired growth and physical development as stated in this chapter;	✓		

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(2) Coordinate state, county, federal, and private transportation activities and programs toward the achievement of statewide objectives;			✓
(3) Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties;		✓	
(4) Provide for improved accessibility to shipping, docking, and storage facilities;			✓
(5) Promote a reasonable level and variety of mass transportation services that adequately meet statewide and community needs;			✓
(6) Encourage transportation systems that serve to accommodate present and future development needs of communities;	✓		
(7) Encourage a variety of carriers to offer increased opportunities and advantages to interisland movement of people and goods;			✓
(8) Increase the capacities of airport and harbor systems and support facilities to effectively accommodate transshipment and storage needs;			✓
(9) Encourage the development of transportation systems and programs which would assist statewide economic growth and diversification;			✓
(10) Encourage the design and development of transportation systems sensitive to the needs of affected communities and the quality of Hawaii's natural environment;		✓	
(11) Encourage safe and convenient use of low-cost, energy-efficient, non-polluting means of transportation;	✓		
(12) Coordinate intergovernmental land use and transportation planning activities to ensure the timely delivery of supporting transportation infrastructure in order to accommodate planned growth objectives; and			✓
(13) Encourage diversification of transportation modes and infrastructure to promote alternate fuels and energy efficiency.		✓	
Analysis: **The Proposed Action supports the above-noted objective and policies relating to transportation. As part of the project, an integrated network of golf cart paths will be developed within the new community for the residents' use in an effort to reduce localized vehicular traffic in the Makena area. In addition, new walking and bicycle pathways will integrate the new community with existing pathways in Makena Resort to encourage safe, non-polluting means of local transportation. Also, the Applicant will be contributing its fair share towards regional roadway improvements in accordance with conditions of previously approved entitlements for the project area.**			
Chapter 226-18 Objectives and policies for facility systems – – energy.			
Objectives: Planning for the State's facility systems with regard to energy shall be directed toward the achievement of the following objectives, giving due consideration to all:			
(1) Dependable, efficient, and economical statewide energy systems capable of supporting the needs of the people;		✓	
(2) Increased energy security and self-sufficiency through the reduction and ultimate elimination of Hawaii's dependence on imported fuels for electrical generation and ground transportation.		✓	
(3) Greater diversification of energy generation in the face of threats to Hawaii's energy supplies and systems;		✓	

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(4) Reduction, avoidance, or sequestration of greenhouse gas emissions from energy supply and use; and			✓
(5) Utility models that make the social and financial interests of Hawaii's utility customers a priority.			✓
Policies:			
(b) To achieve the energy objectives, it shall be the policy of this State to ensure the short- and long-term provision of adequate, reasonably priced, and dependable energy services to accommodate demand.			✓
(1) Support research and development as well as promote the use of renewable energy sources;		✓	
(2) Ensure that the combination of energy supplies and energy-saving systems is sufficient to support the demands of growth;			✓
(3) Base decisions of least-cost supply-side and demand-side energy resource options on a comparison of their total costs and benefits when a least-cost is determined by a reasonably comprehensive, quantitative, and qualitative accounting of their long-term, direct and indirect economic, environmental, social, cultural, and public health costs and benefits;			✓
(4) Promote all cost-effective conservation of power and fuel supplies through measures, including:		✓	
(A) Development of cost-effective demand-side management programs;			✓
(B) Education;			✓
(C) Adoption of energy-efficient practices and technologies; and		✓	
(D) Increasing energy efficiency and decreasing energy use in public infrastructure		✓	
(5) Ensure, to the extent that new supply-side resources are needed, that the development or expansion of energy systems uses the least-cost energy supply option and maximizes efficient technologies; and			✓
(6) Support research, development, demonstration, and use of energy efficiency, load management, and other demand-side management programs, practices, and technologies;		✓	
(7) Promote alternate fuels and transportation energy efficiency;		✓	
(8) Support actions that reduce, avoid, or sequester greenhouse gases in utility, transportation, and industrial sector applications;			✓
(9) Support actions that reduce, avoid, or sequester Hawaii's greenhouse gas emissions through agriculture and forestry initiatives;			✓
(10) Provide priority handling and processing for all state and county permits required for renewable energy projects;			✓
(11) Ensure that liquefied natural gas is used only as a cost-effective transitional, limited-term replacement of petroleum for electricity generation and does not impede the development and use of other cost-effective renewable energy sources; and			✓

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(12) Promote the development of indigenous geothermal energy resources that are located on public trust land as an affordable and reliable source of firm power for Hawaii.			✓
Analysis: **The Proposed Action supports the above-noted objectives and policies relating to energy. A Sustainability Report has been prepared to ensure that the Proposed Action is designed and implemented in accordance with overall guiding sustainability principles. Through the implementation of combined sustainability strategies, the project will seek to reduce its overall environmental impact. For example, the new Mākena Mauka community will require Leadership in Energy and Design (LEED) certification for all buildings 500 square feet and larger.**			
Chapter 226-18.5 Objectives and policies for facility systems – – telecommunications.			
Objective: Planning for the State's telecommunications facility systems shall be directed towards the achievement of dependable, efficient, and economical statewide telecommunications systems capable of supporting the needs of the people.		✓	
Policies:			
(b) To achieve the telecommunications objective, it shall be the policy of this State to ensure the provision of adequate, reasonably priced, and dependable telecommunications services to accommodate demand.			✓
(1) Facilitate research and development of telecommunications systems and resources;			✓
(2) Encourage public and private sector efforts to develop means for adequate, ongoing telecommunications planning;		✓	
(3) Promote efficient management and use of existing telecommunications systems and services; and		✓	
(4) Facilitate the development of education and training of telecommunications personnel.			✓
Analysis: **The Proposed Action supports the objective and above-noted policies relating to telecommunications. The Applicant's design team will coordinate closely with relevant utility providers to connect the new community to existing telecommunication infrastructure. The cost of connection and any necessary upgrades to existing systems will be paid by the Applicant.**			
Chapter 226-19 Objectives and policies for socio-cultural advancement – – housing.			
Objectives: Planning for the State's socio-cultural advancement with regard to housing shall be directed toward the achievement of the following objectives:			
(1) Greater opportunities for Hawaii's people to secure reasonably priced, safe, sanitary, and livable homes, located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals, through collaboration and cooperation between government and nonprofit and for-profit developers to ensure that more affordable housing is made available to very low-, low- and moderate-income segments of Hawaii's population.	✓		
(2) The orderly development of residential areas sensitive to community needs and other land uses.	✓		
(3) The development and provision of affordable rental housing by the State to meet the housing needs of Hawaii's people.	✓		

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Policies:			
(1) Effectively accommodate the housing needs of Hawaii's people.	✓		
(2) Stimulate and promote feasible approaches that increase housing choices for low-income, moderate-income, and gap-group households.	✓		
(3) Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.	✓		
(4) Promote appropriate improvement, rehabilitation, and maintenance of existing housing units and residential areas.			✓
(5) Promote design and location of housing developments taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas.	✓		
(6) Facilitate the use of available vacant, developable, and underutilized urban lands for housing.	✓		
(7) Foster a variety of lifestyles traditional to Hawaii through the design and maintenance of neighborhoods that reflect the culture and values of the community.			✓
(8) Promote research and development of methods to reduce the cost of housing construction in Hawaii.			✓
Analysis: The Proposed Action supports the objectives and above-noted policies relating to housing. The project aims to develop a new master planned residential community in an area designated as appropriate for this type of development by the Maui Island Plan, and amid similar communities. In addition, as part of the project, residential workforce housing units will be developed in an effort to provide opportunities for local families to reside in the Makena region in proximity to resort employment opportunities. The Proposed Action, in part, facilitates the use of available vacant, developable, and underutilized urban lands for housing.			
Chapter 226-20 Objectives and policies for socio-cultural advancement – – health.			
Objectives: Planning for the State's socio-cultural advancement with regard to health shall be directed towards achievement of the following objectives:			
(1) Fulfillment of basic individual health needs of the general public.			✓
(2) Maintenance of sanitary and environmentally healthful conditions in Hawaii's communities.	✓		
(3) Elimination of health disparities by identifying and addressing social determinants of health.			✓
Policies:			
(1) Provide adequate and accessible services and facilities for prevention and treatment of physical and mental health problems, including substance abuse.			✓
(2) Encourage improved cooperation among public and private sectors in the provision of health care to accommodate the total health needs of individuals throughout the State.			✓
(3) Encourage public and private efforts to develop and promote statewide and local strategies to reduce health care and related insurance costs.			✓

Hawai'i State Plan, Chapter 226, HRS Part I. Overall Themes, Goals, Objectives and Policies Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable	DA	IA	NA
(4) Foster an awareness of the need for personal health maintenance and preventive health care through education and other measures.			✓
(5) Provide programs, services, and activities that ensure environmentally healthful and sanitary conditions.			✓
(6) Improve the State's capabilities in preventing contamination by pesticides and other potentially hazardous substances through increased coordination, education, monitoring, and enforcement.			✓
(7) Prioritize programs, services, interventions, and activities that address identified social determinants of health to improve native Hawaiian health and well-being consistent with the United States Congress' declaration of policy as codified in title 42 United States Code section 11702, and to reduce health disparities of disproportionately affected demographics, including native Hawaiians, other Pacific Islanders, and Filipinos. The prioritization of affected demographic groups other than native Hawaiians may be reviewed every ten years and revised based on the best available epidemiological and public health data.			✓
Analysis: **The Proposed Action is directly applicable to the objective related to sanitary and environmentally healthful conditions in Hawai'i's communities. During the construction phase of the Proposed Action, the developer will be required to mitigate potential impacts that could be harmful to health, such as fugitive dust and noise. During the Proposed Action's operational phase, the homeowners' association will be required to maintain community infrastructure.**			
Chapter 226-21 Objectives and policies for Socio-cultural advancement – – education.			
Objective: Planning for the State's socio-cultural advancement with regard to education shall be directed towards achievement of the objective of the provision of a variety of educational opportunities to enable individuals to fulfill their needs, responsibilities, and aspirations.		✓	
Policies:			
(1) Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups.			✓
(2) Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs.		✓	
(3) Provide appropriate educational opportunities for groups with special needs.			✓
(4) Promote educational programs which enhance understanding of Hawaii's cultural heritage.		✓	
(5) Provide higher educational opportunities that enable Hawaii's people to adapt to changing employment demands.			✓
(6) Assist individuals, especially those experiencing critical employment problems or barriers, or undergoing employment transitions, by providing appropriate employment training programs and other related educational opportunities.			✓
(7) Promote programs and activities that facilitate the acquisition of basic skills, such as reading, writing, computing, listening, speaking, and reasoning.			✓
(8) Emphasize quality educational programs in Hawaii's institutions to promote academic excellence.			✓
(9) Support research programs and activities that enhance the education programs of the State.			✓

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Analysis: **The Proposed Action supports the objective and above-noted policies relating to education. The Proposed Action is indirectly applicable to the objective and policies for the socio-cultural advancement of education. For each residential unit built, a school impact fee will be levied, which will go towards the development of educational facilities and programs. The Applicant will coordinate with the State Department of Education to determine the educational impact fee for the project in consideration of previously approved entitlement conditions. In addition, the proposed development includes the construction of a community gathering place, which will support opportunities to share knowledge about Hawai'i's cultural heritage.**			
Chapter 226-22 Objective and policies for socio-cultural advancement – – social services.			
Objective: Planning for the State's socio-cultural advancement with regard to social services shall be directed towards the achievement of the objective of improved public and private social services and activities that enable individuals, families, and groups to become more self-reliant and confident to improve their well-being.			✓
Policies:			
(1) Assist individuals, especially those in need of attaining a minimally adequate standard of living and those confronted by social and economic hardship conditions, through social services and activities within the State's fiscal capacities.			✓
(2) Promote coordination and integrative approaches among public and private agencies and programs to jointly address social problems that will enable individuals, families, and groups to deal effectively with social problems and to enhance their participation in society.			✓
(3) Facilitate the adjustment of new residents, especially recently arrived immigrants, into Hawaii's communities.			✓
(4) Promote alternatives to institutional care in the provision of long-term care for elder and disabled populations.			✓
(5) Support public and private efforts to prevent domestic abuse and child molestation, and assist victims of abuse and neglect.			✓
(6) Promote programs which assist people in need of family planning services to enable them to meet their needs.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above objective and policies related to social services.**			
Chapter 226-23 Objective and policies for socio-cultural advancement – – leisure.			
Objective: Planning for the State's socio-cultural advancement with regard to leisure shall be directed towards the achievement of the objective of the adequate provision of resources to accommodate diverse cultural, artistic, and recreational needs for present and future generations.	✓		
Policies:			
(1) Foster and preserve Hawaii's multi-cultural heritage through supportive cultural, artistic, recreational, and humanities-oriented programs and activities.	✓		
(2) Provide a wide range of activities and facilities to fulfill the cultural, artistic, and recreational needs of all diverse and special groups effectively and efficiently.	✓		
(3) Enhance the enjoyment of recreational experiences through safety and security measures, educational opportunities, and improved facility design and	✓		

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maintenance.			
(4) Promote the recreational and educational potential of natural resources having scenic, open space, cultural, historical, geological, or biological values while ensuring that their inherent values are preserved.	✓		
(5) Ensure opportunities for everyone to use and enjoy Hawaii's recreational resources.	✓		
(6) Assure the availability of sufficient resources to provide for future cultural, artistic, and recreational needs.		✓	
(7) Provide adequate and accessible physical fitness programs to promote the physical and mental well-being of Hawaii's people.			✓
(8) Increase opportunities for appreciation and participation in the creative arts, including the literary, theatrical, visual, musical, folk, and traditional art forms.		✓	
(9) Encourage the development of creative expression in the artistic disciplines to enable all segments of Hawaii's population to participate in the creative arts.			✓
(10) Assure adequate access to significant natural and cultural resources in public ownership.			✓
Analysis: **The Proposed Action supports the objective and above-noted policies relating to leisure. The Proposed Action involves development of a new master-planned community that will provide for the preservation of open space resources as well as the ongoing maintenance/expansion of park facilities, creation of walking trails, installation of additional beach parking stalls, and construction of new recreational facilities for residents, including a new golf course clubhouse, new driving range, and improvements to the South Golf Course, which is currently closed. The Applicant also intends to create a community gathering space to facilitate social cultural learning and advancement within Makena, which will be based on input received from ongoing outreach with community stakeholders.**			
Chapter 226-24 Objective and policies for socio-cultural advancement – – individual rights and personal well-being.			
<u>Objective</u>: Planning for the State's socio-cultural advancement with regard to individual rights and personal well-being shall be directed towards achievement of the objective of increased opportunities and protection of individual rights to enable individuals to fulfill their socio-economic needs and aspirations.			✓
<u>Policies</u>:			
(1) Provide effective services and activities that protect individuals from criminal acts and unfair practices and that alleviate the consequences of criminal acts in order to foster a safe and secure environment.			✓
(2) Uphold and protect the national and state constitutional rights of every individual.			✓
(3) Assure access to, and availability of, legal assistance, consumer protection, and other public services which strive to attain social justice.			✓
(4) Ensure equal opportunities for individual participation in society.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above objective and policies related to individual rights and personal well-being.**			
Chapter 226-25 Objective and policies for socio-cultural advancement – – culture.			

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Objective: Planning for the State's socio-cultural advancement with regard to culture shall be directed toward the achievement of the objective of enhancement of cultural identities, traditions, values, customs, and arts of Hawaii's people.	✓		
Policies:			
(1) Foster increased knowledge and understanding of Hawaii's ethnic and cultural heritages and the history of Hawaii.		✓	
(2) Support activities and conditions that promote cultural values, customs, and arts that enrich the lifestyles of Hawaii's people and which are sensitive and responsive to family and community needs.	✓		
(3) Encourage increased awareness of the effects of proposed public and private actions on the integrity and quality of cultural and community lifestyles in Hawaii.		✓	
(4) Encourage the essence of the aloha spirit in people's daily activities to promote harmonious relationships among Hawaii's people and visitors.		✓	
Analysis: **The Proposed Action supports the objective and above-noted policy relating to culture. An ALRSS and CIA were carried out for the EIS document to ensure that potential impacts to existing historic resources and cultural practices are appropriately mitigated. These studies will foster increased knowledge and understanding of Hawai'i's ethnic and cultural heritages and the history of the Makena area. The proposed community will incorporate facilities and programs to promote awareness among residents of cultural values, customs, and arts that enrich the lifestyle of Hawai'i's people.**			
Chapter 226-26 Objectives and policies for socio-cultural advancement – – public safety.			
Objectives: Planning for the State's socio-cultural advancement with regard to public safety shall be directed towards the achievement of the following objectives:			
(1) Assurance of public safety and adequate protection of life and property for all people.			✓
(2) Optimum organizational readiness and capability in all phases of emergency management to maintain the strength, resources, and social and economic well-being of the community in the event of civil disruptions, wars, natural disasters, and other major disturbances.			✓
(3) Promotion of a sense of community responsibility for the welfare and safety of Hawaii's people.			✓
Policies (Public Safety):			
(1) Ensure that public safety programs are effective and responsive to community needs.			✓
(2) Encourage increased community awareness and participation in public safety programs.			✓
Policies (Public Safety-Criminal Justice):			
(1) Support criminal justice programs aimed at preventing and curtailing criminal activities.			✓
(2) Develop a coordinated, systematic approach to criminal justice administration among all criminal justice agencies.			✓
(3) Provide a range of correctional resources which may include facilities and alternatives to traditional incarceration in order to address the varied security needs of the community and successfully reintegrate offenders into the			✓

Hawai'i State Plan, Chapter 226, HRS Part I. Overall Themes, Goals, Objectives and Policies Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable	DA	IA	NA
community.			
Policies (Public Safety – Emergency Management):			
(1) Ensure that responsible organizations are in a proper state of readiness to respond to major war-related, natural, or technological disasters and civil disturbances at all times.			✓
(2) Enhance the coordination between emergency management programs throughout the State.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above objectives and policies related to public safety.**			
Chapter 226-27 Objectives and policies for socio-cultural advancement – – government.			
Objectives: Planning the State's socio-cultural advancement with regard to government shall be directed towards the achievement of the following objectives:			
(1) Efficient, effective, and responsive government services at all levels in the State.			✓
(2) Fiscal integrity, responsibility, and efficiency in the state government and county governments.			✓
Policies:			
(1) Provide for necessary public goods and services not assumed by the private sector.			✓
(2) Pursue an openness and responsiveness in government that permits the flow of public information, interaction, and response.			✓
(3) Minimize the size of government to that necessary to be effective.			✓
(4) Stimulate the responsibility in citizens to productively participate in government for a better Hawaii.			✓
(5) Assure that government attitudes, actions, and services are sensitive to community needs and concerns.			✓
(6) Provide for a balanced fiscal budget.			✓
(7) Improve the fiscal budgeting and management system of the State.			✓
(8) Promote the consolidation of state and county governmental functions to increase the effective and efficient delivery of government programs and services and to eliminate duplicative services wherever feasible.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above objectives and policies related to an efficient government.**			

Hawai'i State Plan, Chapter 226, HRS Part III. Priority Guidelines Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable	DA	IA	N/A
Chapter 226-101: Purpose. The purpose of this part is to establish overall priority guidelines to address areas of statewide concern.			
Chapter 226-102: Overall direction. The State shall strive to improve the quality of life for Hawaii's present and future population through the pursuit of desirable courses of action in seven major areas of statewide concern which merit priority attention: economic development, population growth and land resource management, affordable housing, crime and criminal justice, quality education, principles of sustainability, and climate change adaptation.			
Chapter 226-103: Economic priority guidelines.			
(a) Priority guidelines to stimulate economic growth and encourage business expansion and development to provide needed jobs for Hawaii's people and achieve a stable and diversified economy:	✓		
(1) Seek a variety of means to increase the availability of investment capital for new and expanding enterprises.	✓		
(A) Encourage investments which:			
(i) Reflect long term commitments to the State;	✓		
(ii) Rely on economic linkages within the local economy;		✓	
(iii) Diversify the economy;			✓
(iv) Reinvest in the local economy;		✓	
(v) Are sensitive to community needs and priorities; and		✓	
(vi) Demonstrate a commitment to provide management opportunities to Hawaii residents; and		✓	
(B) Encourage investments in innovative activities that have a nexus to the State, such as:			✓
(i) Present or former residents acting as entrepreneurs or principals;			✓
(ii) Academic support from an institution of higher education in Hawaii;			✓
(iii) Investment interest from Hawaii residents;			✓
(iv) Resources unique to Hawaii that are required for innovative activity; and			✓
(v) Complementary or supportive industries or government programs or projects.			✓
(2) Encourage the expansion of technological research to assist industry development and support the development and commercialization of technological advancements.			✓
(3) Improve the quality, accessibility, and range of services provided by government to business, including data and reference services and assistance in complying with governmental regulations.			✓
(4) Seek to ensure that state business tax and labor laws and administrative policies are equitable, rational, and predictable.			✓
(5) Streamline the processes for building and development permit and review, and telecommunication infrastructure installation approval and eliminate or consolidate other burdensome or duplicative governmental requirements imposed on business, where scientific evidence indicates that public health, safety and welfare would not be adversely affected.			✓
(6) Encourage the formation of cooperatives and other favorable marketing or distribution arrangements at the regional or local level to assist Hawaii's small-scale producers, manufacturers, and distributors.			✓

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(7) Continue to seek legislation to protect Hawaii from transportation interruptions between Hawaii and the continental United States.			✓
(8) Provide public incentives and encourage private initiative to develop and attract industries which promise long-term growth potentials and which have the following characteristics:			
(A) An industry that can take advantage of Hawaii's unique location and available physical and human resources.		✓	
(B) A clean industry that would have minimal adverse effects on Hawaii's environment.			✓
(C) An industry that is willing to hire and train Hawaii's people to meet the industry's labor needs at all levels of employment.		✓	
(D) An industry that would provide reasonable income and steady employment.		✓	
(9) Support and encourage, through educational and technical assistance programs and other means, expanded opportunities for employee ownership and participation in Hawaii business.			✓
(10) Enhance the quality of Hawaii's labor force and develop and maintain career opportunities for Hawaii's people through the following actions:			
(A) Expand vocational training in diversified agriculture, aquaculture, information industry, and other areas where growth is desired and feasible.			✓
(B) Encourage more effective career counseling and guidance in high schools and post-secondary institutions to inform students of present and future career opportunities.			✓
(C) Allocate educational resources to career areas where high employment is expected and where growth of new industries is desired.			✓
(D) Promote career opportunities in all industries for Hawaii's people by encouraging firms doing business in the State to hire residents.			✓
(E) Promote greater public and private sector cooperation in determining industrial training needs and in developing relevant curricula and on-the-job training opportunities.			✓
(F) Provide retraining programs and other support services to assist entry of displaced workers into alternative employment.			✓
(b) Priority guidelines to promote the economic health and quality of the visitor industry:		✓	
(1) Promote visitor satisfaction by fostering an environment which enhances the Aloha Spirit and minimizes inconveniences to Hawaii's residents and visitors.		✓	
(2) Encourage the development and maintenance of well-designed, adequately serviced hotels and resort destination areas which are sensitive to neighboring communities and activities and which provide for adequate shoreline setbacks and beach access.			✓
(3) Support appropriate capital improvements to enhance the quality of existing resort destination areas and provide incentives to encourage investment in upgrading, repair, and maintenance of visitor facilities.			✓
(4) Encourage visitor industry practices and activities which respect, preserve, and enhance Hawaii's significant natural, scenic, historic, and cultural resources.			✓
(5) Develop and maintain career opportunities in the visitor industry for Hawaii's people, with emphasis on managerial positions.			✓
(6) Support and coordinate tourism promotion abroad to enhance Hawaii's share of existing and potential visitor markets.			✓
(7) Maintain and encourage a more favorable resort investment climate consistent with the objectives of this chapter.			✓

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(8) Support law enforcement activities that provide a safer environment for both visitors and residents alike.			✓
(9) Coordinate visitor industry activities and promotions to business visitors through the state network of advanced data communication techniques.			✓
(c) Priority guidelines to promote the continued viability of the sugar and pineapple industries:			✓
(1) Provide adequate agricultural lands to support the economic viability of the sugar and pineapple industries.			✓
(2) Continue efforts to maintain federal support to provide stable sugar prices high enough to allow profitable operations in Hawaii.			✓
(3) Support research and development, as appropriate, to improve the quality and production of sugar and pineapple crops.			✓
(d) Priority guidelines to promote the growth and development of diversified agriculture and aquaculture:		✓	
(1) Identify, conserve, and protect agricultural and aquacultural lands of importance and initiate affirmative and comprehensive programs to promote economically productive agricultural and aquacultural uses of such lands.			✓
(2) Assist in providing adequate, reasonably priced water for agricultural activities.			✓
(3) Encourage public and private investment to increase water supply and to improve transmission, storage, and irrigation facilities in support of diversified agriculture and aquaculture.			✓
(4) Assist in the formation and operation of production and marketing associations and cooperatives to reduce production and marketing costs.			✓
(5) Encourage and assist with the development of a waterborne and airborne freight and cargo system capable of meeting the needs of Hawaii's agricultural community.			✓
(6) Seek favorable freight rates for Hawaii's agricultural products from interisland and overseas transportation operators.			✓
(7) Encourage the development and expansion of agricultural and aquacultural activities which offer long-term economic growth potential and employment opportunities.			✓
(8) Continue the development of agricultural parks and other programs to assist small independent farmers in securing agricultural lands and loans.			✓
(9) Require agricultural uses in agricultural subdivisions and closely monitor the uses in these subdivisions.			✓
(10) Support the continuation of land currently in use for diversified agriculture.		✓	
(11) Encourage residents and visitors to support Hawaii's farmers by purchasing locally grown food and food products.			✓
(e) Priority guidelines for water use and development:	✓		
(1) Maintain and improve water conservation programs to reduce the overall water consumption rate.		✓	
(2) Encourage the improvement of irrigation technology and promote the use of nonpotable water for agricultural and landscaping purposes.	✓		
(3) Increase the support for research and development of economically feasible alternative water sources.			✓
(4) Explore alternative funding sources and approaches to support future water development programs and water system improvements.			✓
(f) Priority guidelines for energy use and development:		✓	
(1) Encourage the development, demonstration, and commercialization of		✓	

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renewable energy sources.			
(2) Initiate, maintain, and improve energy conservation programs aimed at reducing energy waste and increasing public awareness of the need to conserve energy.			✓
(3) Provide incentives to encourage the use of energy conserving technology in residential, industrial, and other buildings.			✓
(4) Encourage the development and use of energy conserving and cost-efficient transportation systems.		✓	
(g) Priority guidelines to promote the development of the information industry:			✓
(1) Establish an information network, with an emphasis on broadband and wireless infrastructure and capability that will serve as the foundation of and catalyst for overall economic growth and diversification in Hawaii.			✓
(2) Encourage the development of services such as financial data processing, a products and services exchange, foreign language translations, telemarketing, teleconferencing, a twenty-four-hour international stock exchange, international banking, and a Pacific Rim management center.			✓
(3) Encourage the development of small businesses in the information field such as software development; the development of new information systems, peripherals, and applications; data conversion and data entry services; and home or cottage services such as computer programming, secretarial, and accounting services.			✓
(4) Encourage the development or expansion of educational and training opportunities for residents in the information and telecommunications fields.			✓
(5) Encourage research activities, including legal research in the information and telecommunications fields.			✓
(6) Support promotional activities to market Hawaii's information industry services.			✓
(7) Encourage the location or co-location of telecommunication or wireless information relay facilities in the community, including public areas, where scientific evidence indicates that the public health, safety, and welfare would not be adversely affected.			✓
Analysis: **The Proposed Action supports the above-noted priority guidelines relating to the economy. The Proposed Action seeks to stimulate economic growth and health by developing a resort-oriented master-planned community in a location designated as appropriate for such growth by the MIP. Through this Proposed Action, the local economy will benefit from job creation and resident spending. The development of additional beach parking as part of the Proposed Action promotes visitor satisfaction and helps to minimize inconveniences to the Native Hawaiian community. In addition, the project's location mauka of Makena Alanui Road supports protection of the shoreline and beach access. The proposed land plan incorporates the Nāulu Farm, which is operated by the Applicant's 'Ōiwi Resources Stewardship Department, supporting the continuation of land being used for diversified agriculture. The project area will be served by the privately-owned and maintained Makena Wastewater Reclamation Facility and will utilize reclaimed wastewater for irrigation of common area landscaping and fire flow purposes.**			
Chapter 226-104: Population growth and land resources priority guidelines.			
(a) Priority guidelines to effect desired statewide growth and distribution:	✓		
(1) Encourage planning and resource management to insure that population growth rates throughout the State are consistent with available and planned resource capacities and reflect the needs and desires of Hawaii's people.	✓		
(2) Manage a growth rate for Hawaii's economy that will parallel future employment needs for Hawaii's people.			✓

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(3) Ensure that adequate support services and facilities are provided to accommodate the desired distribution of future growth throughout the State.	✓		
(4) Encourage major state and federal investments and services to promote economic development and private investment to the neighbor islands, as appropriate.			✓
(5) Explore the possibility of making available urban land, low-interest loans, and housing subsidies to encourage the provision of housing to support selective economic and population growth on the neighbor islands.			✓
(6) Seek federal funds and other funding sources outside the State for research, program development, and training to provide future employment opportunities on the neighbor islands.			✓
(7) Support the development of high technology parks on the neighbor islands.			✓
(b) Priority guidelines for regional growth distribution and land resource utilization:	✓		
(1) Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures, and away from areas where other important benefits are present, such as protection of important agricultural land or preservation of lifestyles.	✓		
(2) Make available marginal or nonessential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district.	✓		
(3) Restrict development when drafting of water would result in exceeding the sustainable yield or in significantly diminishing the recharge capacity of any groundwater area.			✓
(4) Encourage restriction of new urban development in areas where water is insufficient from any source for both agricultural and domestic use.			✓
(5) In order to preserve green belts, give priority to state capital-improvement funds which encourage location of urban development within existing urban areas except where compelling public interest dictates development of a noncontiguous new urban core.			✓
(6) Seek participation from the private sector for the cost of building infrastructure and utilities, and maintaining open spaces.	✓		
(7) Pursue rehabilitation of appropriate urban areas.			✓
(8) Support the redevelopment of Kakaako into a viable residential, industrial, and commercial community.			✓
(9) Direct future urban development away from critical environmental areas or impose mitigating measures so that negative impacts on the environment would be minimized.			✓
(10) Identify critical environmental areas in Hawaii to include but not be limited to the following: watershed and recharge areas; wildlife habitats (on land and in the ocean); areas with endangered species of plants and wildlife; natural streams and water bodies; scenic and recreational shoreline resources; open space and natural areas; historic and cultural sites; areas particularly sensitive to reduction in water and air quality; and scenic resources.		✓	
(11) Identify all areas where priority should be given to preserving rural character and lifestyle.			✓
(12) Utilize Hawaii's limited land resources wisely, providing adequate land to accommodate projected population and economic growth needs while ensuring the protection of the environment and the availability of the shoreline, conservation lands, and other limited resources for future	✓		

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generations.			
(13) Protect and enhance Hawaii's shoreline, open spaces, and scenic resources.		✓	
Analysis: **The Proposed Action supports the above-noted priority guidelines relating to population growth and land resources. The Proposed Action seeks to support the population by providing a resort-oriented master-planned community in a location designated as appropriate for such growth by the MIP. The majority of residents of the proposed new community are anticipated to be part-time residents on Maui. As such, there will not be a substantial increase in population with implementation of the Proposed Action. In addition, the project will fund and construct all necessary infrastructure systems needed to service the project.**			
Chapter 226-105: Crime and criminal justice.			
Priority guidelines in the area of crime and criminal justice:			✓
(1) Support law enforcement activities and other criminal justice efforts that are directed to provide a safer environment.			✓
(2) Target state and local resources on efforts to reduce the incidence of violent crime and on programs relating to the apprehension and prosecution of repeat offenders.			✓
(3) Support community and neighborhood program initiatives that enable residents to assist law enforcement agencies in preventing criminal activities.			✓
(4) Reduce overcrowding or substandard conditions in correctional facilities through a comprehensive approach among all criminal justice agencies which may include sentencing law revisions and use of alternative sanctions other than incarceration for persons who pose no danger to their community.			✓
(5) Provide a range of appropriate sanctions for juvenile offenders, including community-based programs and other alternative sanctions.			✓
(6) Increase public and private efforts to assist witnesses and victims of crimes and to minimize the costs of victimization.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above priority guidelines related to crime and criminal justice.**			
Chapter 226-106: Affordable housing.			
Priority guidelines for the provision of affordable housing:	✓		
(1) Seek to use marginal or nonessential agricultural land and public land to meet housing needs of low- and moderate-income and gap-group households.			✓
(2) Encourage the use of alternative construction and development methods as a means of reducing production costs.			✓
(3) Improve information and analysis relative to land availability and suitability for housing.			✓
(4) Create incentives for development which would increase home ownership and rental opportunities for Hawaii's low- and moderate-income households, gap-group households, and residents with special needs.			✓
(5) Encourage continued support for government or private housing programs that provide low interest mortgages to Hawaii's people for the purchase of initial owner-occupied housing.			✓
(6) Encourage public and private sector cooperation in the development of rental housing alternatives.	✓		
(7) Encourage improved coordination between various agencies and levels of government to deal with housing policies and regulations.			✓
(8) Give higher priority to the provision of quality housing that is affordable for Hawaii's residents and less priority to development of housing intended			✓

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primarily for individuals outside of Hawaii.			
Analysis: **The Proposed Action supports the above-noted priority guidelines relating to affordable housing. As part of the project, onsite workforce housing units will be developed in an effort to provide opportunities for local families to reside in the Makena region in proximity to resort employment opportunities.**			
Chapter 226-107: Quality education.			
Priority guidelines to promote quality education:		✓	
(1) Pursue effective programs which reflect the varied district, school, and student needs to strengthen basic skills achievement;			✓
(2) Continue emphasis on general education "core" requirements to provide common background to students and essential support to other university programs;			✓
(3) Initiate efforts to improve the quality of education by improving the capabilities of the education work force;			✓
(4) Promote increased opportunities for greater autonomy and flexibility of educational institutions in their decision making responsibilities;			✓
(5) Increase and improve the use of information technology in education by the availability of telecommunications equipment for:			
(A) The electronic exchange of information;			✓
(B) Statewide electronic mail; and			✓
(C) Access to the Internet.			✓
(6) Encourage programs that increase the public's awareness and understanding of the impact of information technologies on our lives;			✓
(7) Pursue the establishment of Hawaii's public and private universities and colleges as research and training centers of the Pacific;			✓
(8) Develop resources and programs for early childhood education;		✓	
(9) Explore alternatives for funding and delivery of educational services to improve the overall quality of education; and		✓	
(10) Strengthen and expand educational programs and services for students with special needs.		✓	
Analysis: **The Proposed Action supports the above-noted priority guidelines relating to education. A school impact fee will be levied against each residential unit, which is anticipated to go towards development of school and education facilities. As such, the Proposed Action is indirectly applicable to the development of school resources and facilities to promote quality education. The Applicant will coordinate with the State Department of Education to determine the educational impact fee for the project in consonance with previously approved entitlement conditions.**			
CHAPTER 226-108: Sustainability			
Priority guidelines and principles to promote sustainability shall include:	✓		
(1) Encouraging balanced economic, social, community, and environmental priorities;	✓		
(2) Encouraging planning that respects and promotes living within the natural resources and limits of the State;	✓		
(3) Promoting a diversified and dynamic economy;			✓
(4) Encouraging respect for the host culture;		✓	
(5) Promoting decisions based on meeting the needs of the present without compromising the needs of future generations;			✓
(6) Considering the principles of the ahupua'a system; and			✓

Hawai'i State Plan, Chapter 226, HRS Part III. Priority Guidelines Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable	DA	IA	N/A
(7) Emphasizing that everyone, including individuals, families, communities, businesses, and government, has the responsibility for achieving a sustainable Hawaii.			✓
Analysis: The Proposed Action supports the above-noted priority guidelines relating to sustainability. The Proposed Action has been designed in a way that balances economic, social, community, and environmental priorities. As previously discussed, the Proposed Action will create jobs and encourage spending, both in the short term for construction contractors and supplies, and in the long term with resort employees. The development of workforce housing units will provide an opportunity for families to reside in the Makena region in proximity to resort employment opportunities. The project has been designed such that environmental impacts will be appropriately mitigated. In addition, a Sustainability Report has been prepared to ensure that the Proposed Action is designed and implemented in accordance with overall guiding sustainability principles. Through the implementation of combined sustainability strategies, the project will seek to reduce its overall environmental impact. For example, the new Mākena Mauka community will require LEED certification for all buildings 500 square feet and larger. The Proposed Action has been designed with the preservation of Makena's natural resources, such as water, in mind, and these resources will not be excessively burdened by the project.			
CHAPTER 226-109: Climate change adaptation			
Priority guidelines and principles to promote climate change adaptation shall include:	✓		
(1) Ensure that Hawaii's people are educated, informed, and aware of the impacts climate change may have on their communities;			✓
(2) Encourage community stewardship groups and local stakeholders to participate in planning and implementation of climate change policies;			✓
(3) Invest in continued monitoring and research of Hawaii's climate and the impacts of climate change on the State;			✓
(4) Consider native Hawaiian traditional knowledge and practices in planning for the impacts of climate change;		✓	
(5) Encourage the preservation and restoration of natural landscape features, such as coral reefs, beaches and dunes, forests, streams, floodplains, and wetlands, that have the inherent capacity to avoid, minimize, or mitigate the impacts of climate change;	✓		
(6) Explore adaptation strategies that moderate harm or exploit beneficial opportunities in response to actual or expected climate change impacts to the natural and built environments;		✓	
(7) Promote sector resilience in areas such as water, roads, airports, and public health, by encouraging the identification of climate change threats, assessment of potential consequences, and evaluation of adaptation options;		✓	
(8) Foster cross-jurisdictional collaboration between county, state, and federal agencies and partnerships between government and private entities and other nongovernmental entities, including nonprofit entities;			✓
(9) Use management and implementation approaches that encourage the continual collection, evaluation, and integration of new information and strategies into new and existing practices, policies, and plans; and			✓
(10) Encourage planning and management of the natural and built environments that effectively integrate climate change policy.	✓		
Analysis: **The Proposed Action supports the above-noted priority guidelines relating to climate change adaptation. As part of the environmental review process, technical studies related to assessing climate change resiliency have been completed, including a Sustainability Report and an Air Quality and Climate Change Study. A Water Quality Assessment has also been conducted to determine the impact, if any, the proposed development would have on the nearshore environment. Appropriate mitigation measures will be implemented, including a comprehensive**			

Hawai'i State Plan, Chapter 226, HRS Part III. Priority Guidelines Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable	DA	IA	N/A
program of BMPs and LID measures to minimize potential impacts related to runoff. In addition, the Proposed Action has been evaluated in the context of anticipated long-term sea-level rise to ensure the Proposed Action will not be significantly adversely affected by long-term climate change projections.			

APPENDIX Z

ANALYSIS OF COUNTYWIDE POLICY PLAN

APPENDIX Z.

Analysis of Project Applicability to Countywide Policy Plan

The Countywide Policy Plan was adopted in March 2010 and is a comprehensive policy document for the islands of Maui County to the year 2030. The plan replaces the *General Plan of the County of Maui 1990 Update* and provides the policy framework for the development of the forthcoming Maui Island Plan as well as for updating the nine (9) detailed Community Plans.

The Countywide Policy Plan provides broad goals, objectives, policies, and implementing actions that portray the desired direction of the County's future. Goals are intended to describe a desirable condition of the County by the year 2030 and are intentionally general. Objectives tend to be more specific and may be regarded as milestones to achieve the larger goals. Policies are not intended as regulations, but instead provide a general guideline for County decision makers, departments, and collaborating organizations toward the attainment of goals and objectives. Implementing actions are specific tasks, procedures, programs, or techniques that carry out policy.

Discussion of how the Proposed Action conforms to the relevant goals, objectives, policies, and implementing actions of the Countywide Policy Plan is provided below. The methodology for assessing a project's relationship to the Countywide Policy Plan involves examining the project's applicability to the Plan's goals, objectives, and policies. "Applicability" refers to a project's need, purpose, and effects, and how they advance or promote a particular set of goals, objectives and policies. In assessing the relationship between a proposed action and the Countywide Policy Plan, an action may be categorized in one of the following groups:

1. **Directly applicable:** the action and its potential effects directly advance, promote, or affect the relevant goal, objective, or policy.

   Example: A County project to develop a new water source and related transmission facilities would be directly applicable to improving physical infrastructure. The relevant objective states: *"Improve water systems to assure access to sustainable, clean, reliable, and affordable sources of water*" (Objective I.1). A policy within this objective category states: *"Ensure that adequate supplies of water are available prior to approval of subdivision or construction documents"* (Policy I.1.a).

   In this instance, the proposed action is considered to be directly applicable to the cited objective and policy.

2. **Indirectly applicable:** the action and its potential effects indirectly support, advance, or affect the objective, policy, or priority guideline.

   Example: The county water source project cited above supports the objective to: *"Improve land use management and implement a directed-growth strategy"* (Objective J.1). A related policy encompassed by this objective, states: *"Direct new development in and*

around communities with existing infrastructure and service capacity, and protect natural, scenic, shoreline, and cultural resources" (Policy J.1.h). In this case, the principle purpose of the project is not to create source specifically intended to improve land use management. Nonetheless, the proposed action indirectly supports the Countywide Policy Plan's directives relating to appropriate locations for new development.

3. **Not applicable:** the action and its potential effects have no direct or indirect relationship to the objectives and policies of the Countywide Policy Plan.

Example: The county water source improvement project referenced above may not have direct or indirect linkage to Objective D.1, which states: *"In cooperation with the Federal and State governments and nonprofit agencies, broaden access to social and healthcare services and expand options to improve the overall wellness of the people of Maui County"*. Hence, from a policy analysis and linkage standpoint, the proposed action would be considered not applicable to this set of objectives and policies.

It is recognized that policy analysis is subject to interpretation and is best considered in the context of the proposed action's local and regional conditions.

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
A. PROTECT THE NATURAL ENVIRONMENT			
Goal: Maui County's natural environment and distinctive open spaces will be preserved, managed, and cared for in perpetuity.	✓		
Objective:			
(1) Improve the opportunity to experience the natural beauty and native biodiversity of the islands for present and future generations.	✓		
Policies:			
(a) Perpetuate native Hawaiian biodiversity by preventing the introduction of invasive species, containing or eliminating existing noxious pests, and protecting critical habitat areas.		✓	
(b) Preserve and reestablish indigenous and endemic species' habitats and their connectivity.		✓	
(c) Restore and protect forests, wetlands, watersheds, and stream flows, and guard against wildfires, flooding, and erosion.	✓		
(d) Protect baseline stream flows for perennial streams, and support policies that ensure adequate stream flow to support Native Hawaiian aquatic species, traditional kalo cultivation, and self-sustaining ahupua'a.		✓	
(e) Protect undeveloped beaches, dunes, and coastal ecosystems, and restore natural shoreline processes.		✓	
(f) Protect the natural state and integrity of unique terrain, valued natural environments, and geological features.		✓	
(g) Preserve and provide ongoing care for important scenic vistas, view planes, landscapes, and open-space resources.		✓	
(h) Expand coordination with the State and nonprofit agencies and their volunteers to reduce invasive species, replant indigenous species, and identify critical habitat.		✓	

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
Implementing Actions:			
(a) Develop island-wide networks of greenways, watercourses, and habitat corridors.			✓
Analysis: **The Proposed Action supports the goal, objective, and above-noted policies relating to preservation of Maui's natural environment and distinctive open spaces. The Proposed Action has been designed with careful consideration given to community input obtained during the planning process to complement and enhance existing development within the Mākena Resort. Particular attention has been given during the design process to the placement of buildings to arrive at a plan that is both sensitive and place-appropriate to the surrounding community. A View Analysis, providing "before" and "after" perspectives of the proposed new community from public vantage points, has been prepared to demonstrate the low profile of the project. The Proposed Action also involves protecting an existing dryland forest, preserving the habitat of indigenous and endemic species, and maintaining open space resources in the project area.**			
Objective:			
(2) Improve the quality of environmentally sensitive, locally valued natural resources and native ecology of each island.	✓		
Policies:			
(a) Protect and restore nearshore reef environments and water quality.		✓	
(b) Protect marine resources and valued wildlife.		✓	
(c) Improve the connection between urban environments and the natural landscape, and incorporate natural features of the land into urban design.	✓		
(d) Utilize land-conservation tools to ensure the permanence of valued open spaces.	✓		
(e) Mitigate the negative effects of upland uses on coastal wetlands, marine life, and coral reefs.	✓		
(f) Strengthen coastal-zone management, re-naturalization of shorelines, where possible, and filtration or treatment of urban and agricultural runoff.		✓	
(g) Regulate the use and maintenance of stormwater-treatment systems that incorporate the use of native vegetation and mimic natural systems.	✓		
(h) Advocate for stronger regulation of fishing, boating, cruise ship, and ecotourism activities.			✓
(i) Restore watersheds and aquifer-recharge areas to healthy and productive status, and increase public knowledge about the importance of watershed stewardship, water conservation, and groundwater protection.			✓
Implementing Actions:			
(a) Develop regulations to minimize runoff of pollutants into nearshore waters and reduce nonpoint and point source pollution.			✓
Analysis: **The Proposed Action supports the objective and above-noted policies relating to the improvement of environmentally sensitive, locally valued natural resources and native ecology. As part of the environmental review process, a Water Quality Assessment and Marine Biological Survey have been conducted to assess potential impacts from the project on the nearshore environment. A comprehensive program of Best Management Practices (BMPs) and a drainage plan inclusive of Low Impact Development (LID) techniques will be used to minimize the potential for construction and post-construction-related drainage impacts. The Proposed Action also sets out to preserve an area of dryland forest within the project area, which supports the native ecology of the area.**			
Objective:			
(3) Improve the stewardship of the natural environment.	✓		
Policies:			
(a) Preserve and protect natural resources with significant scenic, economic,		✓	

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
cultural, environmental, or recreational value.			
(b) Improve communication, coordination, and collaboration among government agencies, nonprofit organizations, communities, individuals, and land owners that work for the protection of the natural environment.			✓
(c) Evaluate development to assess potential short-term and long-term impacts on land, air, aquatic, and marine environments.		✓	
(d) Improve efforts to mitigate and plan for the impact of natural disasters, human influenced emergencies, and global warming.		✓	
(e) Regulate access to sensitive ecological sites and landscapes.	✓		
(f) Reduce air, noise, light, land, and water pollution, and reduce Maui County's contribution to global climate change.		✓	
(g) Plan and prepare for and educate visitors and residents about the possible effects of global warming.			✓
(h) Provide public access to beaches and shorelines for recreational and cultural purposes where appropriate.	✓		
(i) Educate the construction and landscape industries and property owners about the use of best management practices to prevent erosion and nonpoint source pollution.		✓	
(j) Support the acquisition of resources with scenic, environmental, and recreational value, and encumber their use.			✓
(k) Improve enforcement activities relating to the natural environment.			✓
(l) For each shoreline community, identify and prioritize beach-conservation objectives, and develop action plans for their implementation.			✓
Implementing Actions:			✓
(a) Document, record, and monitor existing conditions, populations, and locations of flora and fauna communities.		✓	
(b) Implement Federal and State policies that require a reduction of greenhouse-gas emissions.			✓
(c) Establish a baseline inventory of available natural resources and their respective carrying capacities.			✓
***Analysis*: The Proposed Action supports the objective and above-noted policies relating to stewardship of the natural environment. The Proposed Action recognizes the importance of environmental stewardship and will incorporate measures to mitigate impacts to and protect resources with significant scenic, economic, cultural, environmental, and recreational value. Such measures include undertaking technical analyses such as a View Analysis, an Economic and Fiscal Impact Study, archaeological investigations and supporting documentation, terrestrial and marine biological surveys, an Air Quality and Climate Change Study, a Water Resources Report, and a Cultural Impact Assessment (CIA), as well as employing a comprehensive program of BMPs to prevent impacts from construction, including temporary erosion control, stormwater management, and dust control. In addition, the Proposed Action will contribute a pro rata share for regional roadway improvements to improve regional access to Makena and develop additional beach parking in appropriate locations in the local community. The project will improve connectivity with hiking trails and walking, bicycle, and golf cart paths. The archaeological sites will have restricted access pursuant to the Proposed Action's preservation plans.**			
Objective:			
(4) Educate residents and visitors about responsible stewardship practices and the interconnectedness of the natural environment and people.		✓	
Policies:			
(a) Expand education about native flora, fauna, and ecosystems.		✓	

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
(b) Align priorities to recognize that the health of the natural environment and the health of people are inextricably linked.			✓
(c) Promote programs and incentives that decrease greenhouse-gas emissions and improve environmental stewardship.		✓	
Analysis: **The Proposed Action supports the objective and above-noted policies relating to education about responsible stewardship practices and the interconnectedness of the natural environment and people. As part of the environmental impact analysis for the Proposed Action, a Flora and Fauna Survey of the project area was carried out to identify existing flora and fauna communities. The Proposed Action will preserve an existing dryland forest in the project area. In addition, the Proposed Action will incorporate walking, bicycle, and golf cart pathways to connect with existing pathways and encourage alternative forms of transportation in the local community, thereby helping to reduce greenhouse gas emissions.**			
B. PRESERVE LOCAL CULTURES AND TRADITIONS			
Goal: Maui County will foster a spirit of pono and protect, perpetuate, and reinvigorate its resident's multi-cultural values and traditions to ensure that current and future generations will enjoy the benefits of their rich island heritage.	✓		
Objective:			
(1) Perpetuate the Hawaiian culture as a vital force in the lives of residents.	✓		
Policies:			
(a) Protect and preserve access to mountain, ocean, and island resources for traditional Hawaiian cultural practices.	✓		
(b) Prohibit inappropriate development of cultural lands and sites that are important for traditional Hawaiian cultural practices, and establish mandates for the special protection of these lands in perpetuity.	✓		
(c) Promote the use of ahupua'a and moku management practices.		✓	
(d) Encourage the use of traditional Hawaiian architecture and craftsmanship.	✓		
(e) Promote the use of the Hawaiian language.			✓
(f) Recognize and preserve the unique natural and cultural characteristics of each ahupua'a or district.		✓	
(g) Encourage schools to promote broader incorporation of Hawaiian and other local cultures' history and values lessons into curriculum.			✓
(h) Ensure the protection of Native Hawaiian rights.		✓	
(i) Promote, encourage, and require the correct use of traditional place names, particularly in government documents, signage, and the tourism industry.		✓	
Implementing Actions:			
(a) Establish alternative land use and overlay zoning designations that recognize and preserve the unique natural and cultural characteristics of each ahupua'a or district.			✓
(b) Develop requirements for all County applicants to perpetuate and use proper traditional place names in all applications submitted.			✓
Analysis: **The Proposed Action supports the goal, objective, and above-noted policies relating to multi-cultural values and traditions. As part of this environmental review process, a CIA was carried out to ensure the protection of Native Hawaiian rights and identify cultural customs and practices in the project area. The CIA and archaeological investigations will serve to protect significant cultural lands, resources, and sites, and access to these lands and sites in accordance with State Historic Preservation Division (SHPD) requirements. In addition, the Proposed Action will involve the development of a community gathering place for local residents and visitors to**			

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
come together to talk story, conduct environmental education activities, and share local knowledge.			
Objective:			
(2) Emphasize respect for our island lifestyle and our unique local cultures, family, and natural environment.	✓		
Policies:			
(a) Acknowledge the Hawaiian culture as the host culture, and foster respect and humility among residents and visitors toward the Hawaiian people and their practices.	✓		
(b) Perpetuate a respect for diversity, and recognize the historic blending of cultures and ethnicities.	✓		
(c) Encourage the perpetuation of each culture's unique cuisine, attire, dance, music, and folklore, and other unique island traditions and recreational activities.		✓	
(d) Recognize the interconnectedness between the natural environment and the cultural heritage of the islands.		✓	
(e) Protect and prioritize funding for recreational activities that support local cultural practices, such as surfing, fishing, and outrigger-canoe paddling.			✓
Analysis: **The Proposed Action supports the objective and above-noted policies relating to island lifestyle and unique local cultures, family, and natural environment. Regular meetings between the Applicant and local stakeholders have been and will continue to be carried out in recognition of the island lifestyle, unique local cultures, and the natural environment. Also, a community gathering place will be developed in Mākena Mauka for social and cultural interaction. An existing dryland forest within the project area will be preserved and connectivity will be improved with hiking, walking, and bicycle paths.**			
Objective:			
(3) Preserve for present and future generations the opportunity to know and experience the arts, culture, and history of Maui County.	✓		
Policies:			
(a) Foster teaching opportunities for cultural practitioners to share their knowledge and skills.		✓	
(b) Support the development of cultural centers.	✓		
(c) Broaden opportunities for public art and the display of local artwork.		✓	
(d) Foster the Aloha Spirit by celebrating the Hawaiian host culture and other Maui County cultures through support of cultural-education programs, festivals, celebrations, and ceremonies.		✓	
(e) Support the perpetuation of Hawaiian arts and culture.		✓	
(f) Support programs and activities that record the oral and pictorial history of residents.		✓	
(g) Support the development of repositories for culture, history, genealogy, oral history, film, and interactive learning.	✓		
Implementing Actions:			
(a) Establish incentives for the display of public art.			✓
(b) Establish centers and programs of excellence for the perpetuation of Hawaiian arts and culture.	✓		
Analysis: **The Proposed Action supports the objective and above-noted policies relating to Maui's arts, culture, and history. The Proposed Action will incorporate a community gathering place that will be a facility for social and cultural interaction. The community gathering place**			

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
would foster teaching opportunities for cultural practitioners to share their knowledge and skills and broaden opportunities to foster the Aloha Spirit.			
Objective:			
(4) Preserve and restore significant historic architecture, structures, cultural sites, cultural districts, and cultural landscapes.	✓		
Policies:			
(a) Support the development of island-wide historic, archaeological, and cultural resources inventories.		✓	
(b) Promote the rehabilitation and adaptive reuse of historic sites, buildings, and structures to perpetuate a traditional sense of place.		✓	
(c) Identify a sustainable rate of use and set forth specific policies to protect cultural resources.			✓
(d) Protect and preserve lands that are culturally or historically significant.	✓		
(e) Support programs that protect, record, restore, maintain, provide education about, and interpret cultural districts, landscapes, sites, and artifacts in both natural and museum settings.		✓	
(f) Perpetuate the authentic character and historic integrity of rural communities and small towns.		✓	
(g) Seek solutions that honor the traditions and practices of the host culture while recognizing the needs of the community.		✓	
(h) Support the development of an Archaeological District Ordinance.			✓
(i) Protect summits, slopes, and ridgelines from inappropriate development.			✓
(j) Support the registering of important historic sites on the State and Federal historic registers.		✓	
(k) Provide opportunities for public involvement with restoration and enhancement of all types of cultural resources.		✓	
(l) Foster partnerships to identify and preserve or revitalize historic and cultural sites.		✓	
Implementing Actions:			
(a) Identify, develop, map, and maintain an inventory of locally significant natural. cultural, and historical resources for protection.		✓	
(b) Prepare, continually update, and implement a cultural-management plan for cultural sites, districts, and landscapes, where appropriate.			✓
(c) Enact an Archaeological District Ordinance.			✓
(d) Nominate important historic sites to the State and Federal historic registers.			✓
Analysis: **The Proposed Action supports the objective and above-noted policies relating to the preservation and restoration of significant historic resources. An Archaeological Literature Review and Surface Survey (ALRSS) was carried out as part of the environmental review process to identify and properly document any significant historic or cultural sites within the project area. Through the HRS, 6E review process, which involves consultation with the SHPD, a program likely combining avoidance, preservation, and monitoring will be implemented in order to ensure that these sites will not be negatively impacted by the Proposed Action. In addition, a CIA was carried out to identify the presence of, and potential impacts to, any cultural practices occurring in the vicinity of the project area. The CIA authors concluded that the Proposed Action would not significantly or adversely impact cultural resources or traditional or customary practices.**			
C. IMPROVE EDUCATION			
Goal: Residents will have access to lifelong formal and informal educational options enabling them to realize their ambitions.		✓	

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
Objective:			
(1) Encourage the State to attract and retain school administrators and educators of the highest quality.		✓	
Policies:			
(a) Encourage the State to provide teachers with nationally competitive pay and benefit packages.		✓	
(b) Encourage the State to ensure teachers will have the teaching tools and support staff needed to provide students with an excellent education.		✓	
(c) Explore Maui County district- and school-based decision making in public education.			✓
Analysis: **The Proposed Action supports the goal, objective, and above-noted policies relating to educational options. As the majority of market residential units within the new community are expected to be owned and occupied by part-time residents, the project is not expected to place substantial demands on the State Department of Education (DOE) and its school facilities/programs. Children of families living within the 109 onsite workforce housing units would, however, be served by DOE schools. For each residential unit developed within the project, a school impact fee will be paid to the DOE. The Applicant will coordinate with the DOE to determine its fair share for a school impact fee contribution, which would be used by the DOE to improve educational facilities and programs.**			
Objective:			
(2) Provide nurturing learning environments that build skills for the 21st century.		✓	
Policies:			
(a) Expand professional-development opportunities in disciplines that support the economic-development goals of Maui County.			✓
(b) Plan for demographic, social, and technological changes in a timely manner.			✓
(c) Encourage collaborative partnerships to improve conditions of learning environments.			✓
(d) Promote development of neighborhood schools and educational centers.		✓	
(e) Integrate schools, community parks, and playgrounds, and expand each community's use of these facilities.		✓	
(f) Support coordination between land use and school-facility planning agencies.			✓
(g) Encourage the upgrade and ongoing maintenance of public-school facilities.		✓	
(h) Encourage the State Department of Education to seek reliable, innovative, and alternative methods to support a level of per-pupil funding that places Hawai'i among the top tier of states nationally for its financial support of public schools.			✓
(i) Encourage the State to promote healthier, more productive learning environments, including by providing healthy meals, more physical activity, natural lighting, and passive cooling.			✓
(j) Encourage the State to support the development of benchmarks to measure the success of Hawai'i's public-education system and clarify lines of accountability.			✓
(k) Design school and park facilities in proximity to residential areas.			✓
(l) Support technology- and natural-environment-based learning.			✓
(m) Encourage the State to support lower student-teacher ratios in public schools.			✓

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
(n) Encourage alternative learning and educational opportunities.			✓
Implementing Actions:			
(a) Develop safe walking and bicycling programs for school children.			✓
Analysis: **The Proposed Action supports the objective and above-noted policies relating to providing nurturing learning environments. As the majority of market residential units within the new community are expected to be owned and occupied by part-time residents, the project is not expected to place substantial demands on the DOE and its facilities/programs. Children of families living within the 109 onsite workforce housing units would, however, be served by DOE schools. For each residential unit developed within the project, a school impact fee will be paid to the DOE. The Applicant will coordinate with the DOE to determine its fair share for a school impact fee contribution, which would be utilized by the DOE to improve educational facilities and programs.**			
Objective:			
(3) Provide all residents with educational opportunities that can help them better understand themselves and their surroundings and allow them to realize their ambitions.			✓
Policies:			
(a) Encourage the State to improve Maui Community College as a comprehensive community college that will serve each community.			✓
(b) Broaden the use of technology and telecommunications to improve educational opportunities throughout the County.			✓
(c) Attract graduate-level research programs and institutions.			✓
(d) Promote the teaching of traditional practices, including aquaculture; subsistence agriculture; Pacific Island, Asian, and other forms of alternative health practices; and indigenous Hawaiian architecture.			✓
(e) Integrate cultural and environmental values in education, including self-sufficiency and sustainability.			✓
(f) Foster a partnership and ongoing dialogue between business organizations, formal educational institutions, and vocational training centers to tailor learning and mentoring programs to County needs.			✓
(g) Ensure teaching of the arts to all ages.			✓
(h) Expand and develop vocational learning opportunities by establishing trade schools.			✓
(i) Encourage the State to integrate financial and economic literacy in elementary, secondary, and higher-education levels.			✓
Implementing Actions:			
(a) Encourage the State to establish a four-year university, and support the development of other higher-education institutions to enable residents to obtain bachelor degrees and postgraduate degrees in Maui County.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above objective and policies related to college-level educational opportunities.**			
Objective:			
(4) Maximize community-based educational opportunities.			✓
Policies:			
(a) Encourage the State and others to expand pre-school, after-school, and homebased (parent-child) learning.			✓
(b) Support public-private partnerships to develop youth-internship, -apprenticeship, and -mentoring programs.			✓
(c) Support the development of a wide range of informal educational and cultural programs for all residents.			✓

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
(d) Improve partnerships that utilize the skills and talents at Hawai'i's colleges and universities to benefit the County.			✓
(e) Support career-development and job-recruitment programs and centers.			✓
(f) Attract learning institutions and specialty schools to diversify and enhance educational opportunities.			✓
(g) Expand education of important life skills for the general public.			✓
(h) Support community facilities such as museums, libraries, nature centers, and open spaces that provide interactive-learning opportunities for all ages.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above objective and policies related to maximizing community-based educational opportunities.**			
D. STRENGTHEN SOCIAL AND HEALTHCARE SERVICES			
Goal: Health and social services in Maui County will fully and comprehensively serve all segments of the population.			✓
Objective:			
(1) In cooperation with the Federal and State governments and nonprofit agencies, broaden access to social and healthcare services and expand options to improve the overall wellness of the people of Maui County.			✓
Policies:			
(a) Work with other levels of government and the nonprofit sector to expand services to address hunger, homelessness, and poverty.			✓
(b) Support the improvement of opportunities for disadvantaged youth, encourage the tradition of hanai relatives, and support expanded opportunities for foster care.			✓
(c) Support expanded long-term-care options, both in institutions and at home, for patients requiring ongoing assistance and medical attention.			✓
(d) Encourage the expansion and improvement of local hospitals, facilitate the establishment of new healthcare facilities, and facilitate prompt and high-quality emergency- and urgent-care services for all.			✓
(e) Support broadened access to affordable health insurance and health care, and recognize the unique economic challenges posed to families when healthcare services are provided off-island.			✓
(f) Encourage equal access to social and healthcare services through both technological and traditional means.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above objective and policies related to full-service health and social services in Maui County.**			
Objective:			
(2) Encourage the Federal and State governments and the private sector to improve the quality and delivery of social and healthcare services.			✓
Policies:			
(a) Strengthen partnerships with government, nonprofit, and private organizations to provide funding and to improve counseling and other assistance to address substance abuse, domestic violence, and other pressing social challenges.			✓
(b) Encourage the State to improve the quality of medical personnel, facilities, services, and equipment.			✓
(c) Encourage investment to improve the recruitment of medical professionals and the quality of medical facilities and equipment throughout Maui County.			✓
(d) Promote the development of continuum-of-care facilities that provide assisted living, hospice, home-care, and skilled-nursing options allowing the individual to be cared for in a manner congruent with his or her needs and desires.			✓
(e) Support improved social, healthcare, and governmental services for special needs populations.			✓

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(f) Plan for the needs of an aging population and the resulting impacts on social services, housing, and healthcare delivery.			✓
(g) Improve coordination among the police, the courts, and the public in the administration of social and healthcare services.			✓
(h) Support programs that address needs of veterans.			✓
(i) Support programs that address the needs of immigrants.			✓
Implementing Actions:			
(a) Invest in programs designed to improve the general welfare and quality of life of Native Hawaiians.			✓
(b) Assist and facilitate the State Department of Public Safety and others in efforts to strengthen programs and facilities that will improve the mental and social health of incarcerated people and assist in prison inmates' successful transition back into Maui County communities.			✓
(c) Develop and maintain a comprehensive index that will measure the health and wellness needs of families.			✓
(d) Provide heliports countywide for emergency health and safety purposes.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above objective and policies related to improving the quality and delivery of social and healthcare services.**			
Objective:			
(3) Strengthen public-awareness programs related to healthy lifestyles and social and medical services.			✓
Policies:			
(a) Expand public awareness about personal safety and crime prevention.			✓
(b) Encourage residents to pursue education and training for careers in the healthcare, social services, and community-development fields.			✓
(c) Expand public awareness and promote programs to achieve healthy eating habits and drug-free lifestyles.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above objective and policies related to public awareness of health and social service programs.**			
E. EXPAND HOUSING OPPORTUNITIES FOR RESIDENTS			
Goal: Quality, island-appropriate housing will be available to all residents.	✓		
Objective:			
(1) Reduce the affordable housing deficit for residents.	✓		
Policies:			
(a) Ensure that an adequate and permanent supply of affordable housing, both new and existing units, is made available for purchase or rental to our resident and/or workforce population, with special emphasis on providing housing for low- to moderate-income families, and ensure that all affordable housing remains affordable in perpetuity.	✓		
(b) Seek innovative ways to lower housing costs without compromising the quality of our island lifestyle.			✓
(c) Seek innovative methods to secure land for the development of low- and moderate- income housing.	✓		
(d) Provide the homeless population with emergency and transitional shelter and other supportive programs.			✓
(e) Provide for a range of senior-citizen and special needs housing choices on each island that affordably facilitates a continuum of care and services.			✓
(f) Support the Department of Hawaiian Home Lands' development of			✓

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
homestead lands.			
(g) Manage property-tax burdens to protect affordable resident homeownership.			✓
(h) Explore taxation mechanisms to increase and maintain access to affordable housing.			✓
(i) Improve awareness regarding available affordable homeowner's insurance.			✓
(j) Redevelop commercial areas with a mixture of affordable residential and business uses, where appropriate.			✓
(k) Ensure residents are given priority to obtain affordable housing units developed in their communities, consistent with all applicable regulations.	✓		
(l) Establish pricing for affordable housing that is more reflective of Maui County's workforce than the United States Housing and Urban Development's median-income estimates for Maui County.			✓
(m) Develop neighborhoods with a mixture of accessible and integrated community facilities and services.			✓
(n) Provide alternative regulatory frameworks to facilitate the use of Kuleana lands by the descendants of Native Hawaiians who received those lands pursuant to the Kuleana Act of 1850.			✓
(o) Work with lending institutions to expand housing options and safeguard the financial security of homeowners.			✓
(p) Promote the use of the community land trust model and other land-lease and land- financing options.			✓
(q) Support the opportunity to age in place by providing accessible and appropriately designed residential units.			✓
Analysis: **The Proposed Action supports the goal, objective, and above-noted policies relating to housing. The Proposed Action involves the development of a master planned resort residential community in an area suited for this type of development, and amid similar communities. In addition, as part of the project, residential workforce housing units will be developed in an effort to provide affordable housing opportunities for local families, including resort employees and their families, to reside in proximity to resort employment opportunities.**			
Objective:			
(2) Increase the mix of housing types in towns and neighborhoods to promote sustainable land use planning, expand consumer choice, and protect the County's rural and small town character.	✓		
Policies:			
(a) Seek innovative ways to develop 'ohana cottages and accessory-dwelling units as affordable housing.			✓
(b) Design neighborhoods to foster interaction among neighbors.			✓
(c) Encourage a mix of social, economic, and age groups within neighborhoods.		✓	
(d) Promote infill housing in urban areas at scales that capitalize on existing infrastructure, lower development costs, and are consistent with existing or desired patterns of development.			✓
(e) Encourage the building industry to use environmentally sustainable materials, technologies, and site planning.	✓		
(f) Develop workforce housing in proximity to job centers and transit facilities.	✓		
(g) Provide incentives to developers and owners who incorporate green building practices and energy-efficient technologies into their housing developments.			✓
Implementing Actions:			
(a) Revise laws to support neighborhood designs that incorporate a mix of housing types that are appropriate for island living.			✓

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Analysis: **The Proposed Action supports the objective and above-noted policies related to providing a mix of housing types. The Proposed Action involves the development of a master-planned residential community in an area suited for this type of development, amid similar communities and employment centers, and in an area designated for growth. The Proposed Action will also involve the development of workforce housing units on site, which will locate affordable housing in close proximity to jobs. In addition, the Proposed Action is located in close proximity to existing infrastructure, which is consistent with the Kihei-Makena Community Plan, forthcoming South Maui Community Plan, and the Maui Island Plan.**			
Objective:			
(3) Increase and maintain the affordable housing inventory.	✓		
Policies:			
(a) Recognize housing as a basic human need, and work to fulfill that need.	✓		
(b) Prioritize available infrastructure capacity for affordable housing.	✓		
(c) Improve communication, collaboration, and coordination among housing providers and social-service organizations.			✓
(d) Study future projected housing needs, monitor economic cycles, and prepare for future conditions on each island.			✓
(e) Develop public-private and nonprofit partnerships that facilitate the construction of quality affordable housing.	✓		
(f) Streamline the review process for high-quality, affordable housing developments that implement the goals, objectives, and policies of the General Plan.			✓
(g) Minimize the intrusion of housing on prime, productive, and potentially productive agricultural lands and regionally valuable agricultural lands.	✓		
(h) Encourage long-term residential use of existing and future housing to meet residential needs.			✓
Implementing Actions:			
(a) Develop policies to even out the peaks and valleys in Maui County's construction-demand cycles.			✓
Analysis: **The Proposed Action supports the objective and above-noted policies relating to maintaining the affordable housing inventory. The Proposed Action involves the development of a master-planned resort residential community in an area suited for this type of development, amid similar communities. In addition, as part of the project, onsite workforce housing units will be developed in an effort to provide affordable housing opportunities for local families, including resort employees and their families, to reside in the Makena region in proximity to resort employment opportunities. While the majority of the Proposed Action will rely on a private water system, the workforce housing units will connect to the County of Maui, Department of Water Supply's Central Maui Service System, which is in alignment with the policy to prioritize existing infrastructure capacity for affordable housing.**			
Objective:			
(4) Expand access to education related to housing options, homeownership, financing, and residential construction.			✓
Policies:			
(a) Broaden access to information about County, State, and Federal programs that provide financial assistance to renters and home buyers.			✓
(b) Expand access to information about opportunities for homeownership and self-help housing.			✓
(c) Educate residents about making housing choices that support their individual needs, the needs of their communities, and the health of the islands' natural systems.			✓

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
(d) Improve home buyers' education on all aspects of homeownership.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above objective and policies related to education on housing options, homeownership, financing, and residential construction.**			
F. STRENGTHEN THE LOCAL ECONOMY			
Goal: Maui County's economy will be diverse, sustainable, and supportive of community values.	✓		
Objective:			
(1) Promote an economic climate that will encourage diversification of the County's economic base and a sustainable rate of economic growth.	✓		
Policies:			
(a) Support economic decisions that create long-term benefits.	✓		
(b) Promote lifelong education, career development, and technical training for existing and emerging industries.			✓
(c) Invest in infrastructure, facilities, and programs that foster economic diversification.	✓		
(d) Support and promote locally produced products and locally owned operations and businesses that benefit local communities and meet local demand.		✓	
(e) Support programs that assist industries to retain and attract more local labor and facilitate the creation of jobs that offer a living wage.			✓
(f) Encourage work environments that are safe, rewarding, and fulfilling to employees.	✓		
(g) Support home-based businesses that are appropriate for and in character with the community.			✓
(h) Encourage businesses that promote the health and well-being of the residents, produce value-added products, and support community values.			✓
(i) Foster an understanding of the role of all industries in our economy.			✓
(j) Support efforts to improve conditions that foster economic vitality in our historic small towns.			✓
(k) Support and encourage traditional host-culture businesses and indigenous agricultural practices.			✓
(l) Support public and private entities that assist entrepreneurs in establishing locally operated businesses.			✓
Implementing Actions:			
(a) Develop regulations and programs that support opportunities for local merchants, farmers, and small businesses to sell their goods and services directly to the public.			✓
(b) Monitor the carrying capacity of the islands' social, ecological, and infrastructure systems with respect to the economy.			✓
Analysis: **The Proposed Action supports the goal, objective, and above-noted policies related to the diversity and sustainability of Maui's economy. As noted in the Economic and Fiscal Impact Analysis report prepared for the subject project, the construction and operation of the new community will generate substantial employment opportunities as well as increased revenue to both State and County governments.**			
Objective:			
(2) Diversify and expand sustainable forms of agriculture and aquaculture.			✓
Policies:			
(a) Support programs that position Maui County's agricultural products as premium export products.			✓

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(b) Prioritize the use of agricultural land to feed the local population, and promote the use of agricultural lands for sustainable and diversified agricultural activities.			✓
(c) Capitalize on Hawai'i's economic opportunities in the ecologically sensitive aquaculture industries.			✓
(d) Assist farmers to help make Maui County more self-sufficient in food production.			✓
(e) Support ordinances, programs, and policies that keep agricultural land and water available and affordable to farmers.			✓
(f) Support a tax structure that is conducive to the growth of the agricultural economy.			✓
(g) Enhance County efforts to monitor and regulate important agricultural issues.			✓
(h) Support education, research, and facilities that strengthen the agricultural industry.			✓
(i) Maintain the genetic integrity of existing food crops.			✓
(j) Encourage healthy and organic farm practices that contribute to land health and regeneration.			✓
(k) Support cooperatives and other types of nontraditional communal farming and efforts.			✓
(l) Encourage methods of monitoring and controlling genetically modified crops to prevent adverse effects.			✓
(m) Work with the State to ease the permitting process for the revitalization of traditional fish ponds.			✓
Implementing Actions:			
(a) Redirect efforts in the Office of Economic Development to further facilitate the development of the agricultural section and to monitor agricultural legislation and issues.			✓
(b) Publicly identify, with signage and other means, the field locations of all genetically modified crops.			✓
(c) Create agricultural parks in areas distant from genetically modified crops.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above objective and policies related to agricultural economic opportunities.**			
Objective:			
(3) Support a visitor industry that respects the resident culture and the environment.		✓	
Policies:			
(a) Promote traditional Hawaiian practices in visitor-related facilities and activities.		✓	
(b) Encourage and educate the visitor industry to be sensitive to island lifestyles and cultural values.		✓	
(c) Encourage a spirit of welcome for residents at visitor facilities, such as by offering kama'aina incentives and discount programs.			✓
(d) Support the renovation and enhancement of existing visitor facilities.			✓
(e) Support policies, programs, and a tax structure that redirect the benefits of the visitor industry back into the local community.			✓
(f) Encourage resident ownership of visitor-related businesses and facilities.			✓
(g) Develop partnerships to provide educational and training facilities to residents employed in the visitor industry.			✓

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
(h) Foster an understanding of local cultures, customs, and etiquette, and emphasize the importance of the Aloha Spirit as a common good for all.		✓	
(i) Support the diversification, development, evolution, and integration of the visitor industry in a way that is compatible with the traditional, social, economic, spiritual, and environmental values of island residents		✓	
(j) Improve collaboration between the visitor industry and the other sectors of Maui County's economy.			✓
(k) Perpetuate an authentic image of the Hawaiian culture and history and an appropriate recognition of the host culture.		✓	
(l) Support the programs and initiatives outlined in the Maui County Tourism Strategic Plan 2006-2015.			✓
(m) Promote water conservation, beach conservation, and open-space conservation in areas providing services for visitors.		✓	
(n) Recognize the important contributions that the visitor industry makes to the County's economy, and support a healthy and vibrant visitor industry.		✓	
***Analysis*: The Proposed Action supports the objective and above-noted policies relating to the visitor industry. As a master-planned residential community, the Proposed Action seeks to support the visitor industry and population by providing resort-style residential accommodations and related recreational facilities/programs. Through this Proposed Action, the local economy will benefit from tourism, job creation, tax revenues, and visitor spending.**			
Objective:			
(4) Expand economic sectors that increase living-wage job choices and are compatible with community values.		✓	
Policies:			
(a) Support emerging industries, including the following: • Health and wellness industry; • Sports and recreation industry; • Film and entertainment industry; • Arts and culture industry; • Renewable-energy industry; • Research and development industry; • High-technology and knowledge-based industries; • Education and training industry; • Ecotourism industry; and • Agritourism industry.		✓	
***Analysis:* The Proposed Action supports the objective and above-noted policies relating to the expansion of economic sectors. The Proposed Action involves the development of a master-planned residential community. It indirectly supports emerging economic sectors by creating a demand for goods and services and providing affordable housing opportunities for workers employed in these economic sectors.**			
G. IMPROVE PARKS AND PUBLIC FACILITIES			
Goal: A full range of island-appropriate public facilities and recreational opportunities will be provided to improve the quality of life for residents and visitors.	✓		
Objective:			
(1) Expand access to recreational opportunities and community facilities to meet the present and future needs of residents of all ages and physical abilities.	✓		
Policies:			
(a) Protect, enhance, and expand access to public shoreline and mountain resources.	✓		
(b) Expand and enhance the network of parks, multi-use paths, and bikeways.	✓		
(c) Assist communities in developing recreational facilities that promote physical fitness.	✓		

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
(d) Expand venue options for recreation and performances that enrich the lifestyles of Maui County's people.	✓		
(e) Expand affordable recreational and after-school programs for youth.			✓
(f) Encourage and invest in recreational, social, and leisure activities that bring people together and build community pride.	✓		
(g) Promote the development and enhancement of community centers, civic spaces, and gathering places throughout our communities.	✓		
(h) Expand affordable access to recreational opportunities that support the local lifestyle.	✓		
Implementing Actions:			
(a) Identify and reserve lands for cemeteries, and preserve existing cemeteries on all islands, appropriately accommodating varying cultural and, faith-based traditions.			✓
Analysis: **The Proposed Action supports the goal, objective, and above-noted policies relating to island-appropriate public facilities and recreational opportunities. The Proposed Action involves the ongoing maintenance of the Mākena Landing and Maluaka beach parks in Makena, and the integration of bicycle and pedestrian pathways, hiking trails, and golf cart pathways that will connect with existing pathways in the community. The Proposed Action will also include the development of a community gathering place for local residents to foster social and cultural interaction. Beach access parking improvements will be carried out for greater public access to shoreline resources in Makena and better overall access between the mountain and the ocean.**			
Objective:			
(2) Improve the quality and adequacy of community facilities.	✓		
Policies:			
(a) Provide an adequate supply of dedicated shelters and facilities for disaster relief.			✓
(b) Provide and maintain community facilities that are appropriately designed to reflect the traditions and customs of local cultures.	✓		
(c) Ensure that parks and public facilities are safe and adequately equipped for the needs of all ages and physical abilities to the extent reasonable.	✓		
(d) Maintain, enhance, expand, and provide new active and passive recreational facilities in ways that preserve the natural beauty of their locations.	✓		
(e) Redesign or retrofit public facilities to adapt to major shifts in environmental or urban conditions to the extent reasonable.			✓
Analysis: **The Proposed Action supports the objective and above-noted policies relating to improving the quality and adequacy of community facilities. The Proposed Action provides for the ongoing maintenance of the Makena Landing and Maluaka beach parks, which are both owned by the Applicant and made available as County beach park facilities. Further, the project includes development of a community gathering place to foster social and cultural interaction among the Makena residential community. The master plan also provides for a network of trails, open space, and a preserved dryland forest for passive recreational opportunities.**			
Objective:			
(3) Enhance the funding, management, and planning of public facilities and park lands.	✓		
Policies:			
(a) Identify and encourage the establishment of regulated and environmentally sound campgrounds.			✓
(b) Manage park use and control access to natural resources in order to rest sensitive places and utilize the resources in a sustainable manner.			✓
(c) Provide public-recreational facilities that are clean and well-maintained.	✓		

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
(d) Develop partnerships to ensure proper stewardship of the islands' trails, public lands, and access systems.	✓		
(e) Ensure that there is an adequate supply of public restrooms in convenient locations.	✓		
Implementing Actions:			
(a) Encourage the State to allow for overnight fishing along the shoreline in accordance with management plans and regulations.			✓
(b) Develop and regularly update functional plans, including those relating to public facilities, parks, and campgrounds.			✓
(c) Develop and adopt local level-of service standards for public facilities and parks.			✓
(d) Identify, acquire, and develop lands for parks, civic spaces, and public uses.		✓	
Analysis: **The Proposed Action supports the objective and above-noted policies relating to the management and planning of park facilities. The Proposed Action provides for the ongoing maintenance of the Makena Landing and Maluaka beach parks, which are both owned by the Applicant and made available as County beach park facilities. The master plan includes provision of land for the expansion of Makena Landing beach park as well as additional beach access parking within the Makena community.**			
H. DIVERSIFY TRANSPORTATION OPTIONS			
Goal: Maui County will have an efficient, economical, and environmentally sensitive means of moving people and goods.	✓		
Objective:			
(1) Provide an effective, affordable, and convenient ground-transportation system that is environmentally sustainable.		✓	
Policies:			
(a) Execute planning strategies to reduce traffic congestion.		✓	
(b) Plan for the efficient relocation of roadways for the public benefit.			✓
(c) Support the use of alternative roadway designs, such as traffic-calming techniques and modern roundabouts.			✓
(d) Increase route and mode options in the ground-transportation network.			✓
(e) Ensure that roadway systems are safe, efficient, and maintained in good condition.		✓	
(f) Preserve roadway corridors that have historic, scenic, or unique physical attributes that enhance the character and scenic resources of communities.		✓	
(g) Design new roads and roadway improvements to retain and enhance the existing character and scenic resources of the communities through which they pass.			✓
(h) Promote a variety of affordable and convenient transportation services that meet countywide and community needs and expand ridership of transit systems.			✓
(i) Collaborate with transit agencies, government agencies, employers, and operators to provide planning strategies that reduce peak-hour traffic.			✓
(j) Develop and expand an attractive, island-appropriate, and efficient public transportation system.			✓
(k) Provide and encourage the development of specialized transportation options for the young, the elderly, and persons with disabilities.			✓
(l) Evaluate all alternatives to preserve quality of life before widening roads.			✓
(m) Encourage businesses in the promotion of alternative transportation options for resident and visitor use.			✓

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
(n) Support the development of carbon-emission standards and an incentive program aimed at achieving County carbon-emission goals.			✓
Implementing Actions:			
(a) Create incentives and implement strategies to reduce visitor dependence on rental cars.			✓
(b) Establish efficient public-transit routes between employment centers and primary workforce residential areas.			✓
(c) Create attractive, island-appropriate, conveniently located park-and-ride and ride- share facilities.			✓
Analysis: **The Proposed Action supports the goal, objective, and above-noted policies relating to movement of people and goods. An interior roadway network will be engineered and installed as part of implementing the new community. In addition, pedestrian/bicycle pathways and golf cart paths will be developed for the residents' use in an effort to reduce vehicular traffic for localized trips. The Applicant will also be contributing its fair share for regional roadway improvements pursuant to its existing entitlement approvals.**			
Objective:			
(2) Reduce the reliance on the automobile and fossil fuels by encouraging walking, bicycling, and other energy-efficient and safe alternative modes of transportation.	✓		
Policies:			
(a) Make walking and bicycling transportation safe and easy between and within communities.	✓		
(b) Require development to be designed with the pedestrian in mind.	✓		
(c) Design new and retrofit existing rights-of-way with adequate sidewalks, bicycle lanes, or separated multi-use transit corridors.			✓
(d) Support the development of a countywide network of bikeways, equestrian trails, and pedestrian paths.		✓	
(e) Support the reestablishment of traditional trails between communities, to the ocean, and through the mountains for public use.			✓
(f) Encourage educational programs to increase safety for pedestrians and bicyclists.			✓
Implementing Actions:			
(a) Design, build, and modify existing bikeways to improve safety and separation from automobiles.			✓
(b) Increase enforcement to reduce abuse of bicycle and pedestrian lanes by motorized vehicles.			✓
(c) Identify non-motorized transportation options as a priority for new sources of funding.			✓
Analysis: **The Proposed Action supports the objectives and above-noted policies relating to reducing reliance on the automobile and encouraging walking and bicycling. As part of the project, pedestrian, bicycle, and golf cart paths will be developed for the residents' use in an effort to reduce use of vehicles for localized trips.**			
Objective:			
(3) Improve opportunities for affordable, efficient, safe, and reliable air transportation.			✓
Policies:			
(a) Discourage private helicopter and fixed-wing landing sites to mitigate environmental and social impacts.			✓
(b) Encourage the use of quieter aircraft and noise-abatement procedures for arrivals and departures.			✓

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(c) Encourage the modernization and maintenance of air-transportation facilities for general-aviation activities.			✓
(d) Encourage a viable and competitive atmosphere for air carriers to expand service and ensure sufficient intra-County flights and affordable fares for consumers.			✓
(e) Continue to support secondary airports, and encourage the State to provide them with adequate funding.			✓
(f) During Community Plan updates, explore the use of the smaller airports.			✓
(g) Encourage the State to provide efficient, adequate, and affordable parking and transit connections within and around airports.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above objective and policies related to the improvement of air transportation.**			
Objective:			
(4) Improve opportunities for affordable, efficient, safe, and reliable ocean transportation.			✓
Policies:			
(a) Support programs and regulations that reduce the disposal of maritime waste and prevent spills into the ocean.			✓
(b) Encourage the upgrading of harbors to resist damage from natural hazards and disasters.			✓
(c) Encourage the State to study the use of existing harbors and set priorities for future use.			✓
(d) Explore all options to protect the traditional recreational uses of harbors, and mitigate harbor-upgrade impacts to recreational uses where feasible.			✓
(e) Encourage the upgrading of harbors and the separation of cargo and bulk materials from passenger and recreational uses.			✓
(f) Encourage the State to provide for improved capacity at shipping, docking, and storage facilities.			✓
(g) Encourage the State to provide adequate parking facilities and transit connections within and around harbor areas.			✓
(h) Encourage the redevelopment and revitalization of harbors while preserving historic and cultural assets in harbor districts.			✓
(i) Encourage the State to provide adequate facilities for small-boat operations, including small-boat launch ramps, according to community needs.			✓
(j) Support the maintenance and cleanliness of harbor facilities.			✓
(k) Support the redevelopment of harbors as pedestrian-oriented gathering places.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above objective and policies related to the improvement of ocean transportation.**			
Objective:			
(5) Improve and expand the planning and management of transportation systems.	✓		
Policies:			
(a) Encourage progressive community design and development that will reduce transportation trips.	✓		
(b) Require new developments to contribute their pro rata share of local and regional infrastructure costs.		✓	
(c) Establish appropriate user fees for private enterprises that utilize public transportation facilities for recreational purposes.			✓
(d) Support the revision of roadway-design criteria and standards so that roads are compatible with surrounding neighborhoods and the character of rural			✓

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
areas.			
(e) Plan for multi-modal transportation and utility corridors on each island.			✓
(f) Support designing all transportation facilities, including airport, harbor, and mass- transit stations, to reflect Hawaiian architecture.			✓
(g) Utilize transportation-demand management as an integral part of transportation planning.	✓		
(h) Accommodate the planting of street trees and other appropriate landscaping in all public rights-of-way.	✓		
Analysis: **The Proposed Action supports the objective and above-noted policies relating to the improvement and expansion of the planning and management of transportation systems. Traffic Management Plans have been prepared for both the construction and operational phases of the project. These plans set forth a program of transportation demand management measures to reduce the number of vehicle trips and lessen pressure on area roadways. In addition, as part of the project, pedestrian, bicycle, and golf cart paths will be installed for the residents' use in an effort to reduce use of vehicles for localized trips.**			
I. IMPROVE PHYSICAL INFRASTRUCTURE			
Goal: Maui County's physical infrastructure will be maintained in optimum condition and will provide for and effectively serve the needs of the County through clean and sustainable technologies.	✓		
Objective:			
(1) Improve water systems to assure access to sustainable, clean, reliable, and affordable sources of water.	✓		
Policies:			
(a) Ensure that adequate supplies of water are available prior to approval of subdivision or construction documents.	✓		
(b) Develop and fund improved water-delivery systems.	✓		
(c) Ensure a reliable and affordable supply of water for productive agricultural uses.			✓
(d) Promote the reclamation of gray water, and enable the use of reclaimed, gray, and brackish water for activities that do not require potable water.	✓		
(e) Retain and expand public control and ownership of water resources and delivery systems.			✓
(f) Improve the management of water systems so that surface-water and groundwater resources are not degraded by overuse or pollution.	✓		
(g) Explore and promote alternative water-source-development methods.	✓		
(h) Seek reliable long-term sources of water to serve developments that achieve consistency with the appropriate Community Plans.	✓		
Implementing Actions:			
(a) Develop a process to review all applications for desalination.			✓
Analysis: **The Proposed Action supports the goal, objective and above-noted policies relating to the improvement of water system infrastructure. As discussed in Chapter II and according to the Water Resources Report, new water sources in the form of groundwater wells will be developed to serve the Proposed Action – with the exception of the residential workforce housing, which will be connected to the County of Maui, Department of Water Supply Central Maui Service system. The new community will also use reclaimed water for irrigation of landscaping in order to offset overall potable (drinking water) use for the project.**			
Objective:			
(2) Improve waste-disposal practices and systems to be efficient, safe, and as environmentally sound as possible.		✓	

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
Policies:			
(a) Provide sustainable waste-disposal systems and comprehensive, convenient recycling programs to reduce the flow of waste into landfills.		✓	
(b) Support innovative and alternative practices in recycling solid waste and wastewater and disposing of hazardous waste.			✓
(c) Encourage vendors and owners of automobile, appliance, and white goods to participate in the safe disposal and recycling of such goods, and ensure greater accountability for large waste producers.			✓
(d) Develop strategies to promote public awareness to reduce pollution and litter, and encourage residents to reduce, reuse, recycle, and compost waste materials.		✓	
(e) Pursue improvements and upgrades to existing wastewater and solid-waste systems consistent with current and future plans and the County's Capital Improvement Program.		✓	
Implementing Actions:			
(a) Establish recycling, trash-separation, and materials recovery programs and facilities to reduce the flow of waste into landfills.		✓	
(b) Study the feasibility of developing environmentally safe waste-to-energy facilities.			✓
(c) Utilize taxes and fees as means to encourage conservation and recycling.			✓
(d) Implement and regularly update the Integrated Solid Waste Management Plan.			✓
(e) Phase out the use of injection wells.			✓
Analysis: **The Proposed Action supports the objective and above-noted policies relating to improving liquid and solid waste collection practices. The Proposed Action will be serviced by the existing private Makena Wastewater Reclamation Facility (WWRF), which has adequate capacity to serve the projected wastewater demand to be generated by the project. Non-potable reclaimed water from the Makena WWRF will be used for irrigation of landscaping in the new community to offset the project's use of potable (drinking) water use. Solid waste generated by the project will be collected by private refuse services and disposed of at the Central Maui Landfill. Throughout the residential neighborhoods, recycling receptacles/facilities will be provided to divert solid waste away from landfill disposal.**			
Objective:			
(3) Direct growth in a way that makes efficient use of existing infrastructure and to areas where there is available infrastructure capacity.	✓		
Policies:			
(a) Capitalize on existing infrastructure capacity as a priority over infrastructure expansion.	✓		
(b) Planning for new towns should only be considered if a region's growth is too large to be directed into infill and adjacent growth areas.			✓
(c) Utilize appropriate infrastructure technologies in the appropriate locations.		✓	
(d) Promote land use patterns that can be provided with infrastructure and public facilities in a cost-effective manner.		✓	
(e) Support catchment systems and on-site wastewater treatment in rural areas and aggregated water and wastewater systems in urban areas if they are appropriately located.		✓	
Implementing Actions:			
(a) Develop a streamlining system for urban infill projects.			✓

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
(b) Identify appropriate areas for urban expansion of existing towns where infrastructure and public facilities can be provided in a cost-effective manner.	✓		
Analysis: **The Proposed Action supports the objective and above-noted policies relating to directing growth to make efficient use of existing infrastructure and capacity. The Proposed Action is a low-density master-planned residential community in an area designated as suitable for this type of development by the Maui Island Plan. It is located adjacent to existing similar land uses with the privately-owned and maintained Makena WWRF available to service the project. All infrastructure needed to support the project will be installed and paid for by the Applicant.**			
Objective:			
(4) Improve the planning and management of infrastructure systems.	✓		
Policies:			
(a) Provide a reliable and sufficient level of funding to enhance and maintain infrastructure systems.			✓
(b) Require new developments to contribute their pro rata share of local and regional infrastructure costs.	✓		
(c) Improve coordination among infrastructure providers and planning agencies to minimize construction impacts.			✓
(d) Maintain inventories of infrastructure capacity, and project future infrastructure needs.			✓
(e) Require social-justice and -equity issues to be considered during the infrastructure-planning process.			✓
(f) Discourage the development of critical infrastructure systems within hazard zones and the tsunami-inundation zone to the extent practical.			✓
(g) Ensure that infrastructure is built concurrent with or prior to development.	✓		
(h) Ensure that basic infrastructure needs can be met during a disaster.			✓
(i) Locate public facilities and emergency services in appropriate locations that support the health, safety, and welfare of each community and that minimize delivery inefficiencies.			✓
(j) Promote the undergrounding of utility and other distribution lines for health safety, and aesthetic reasons.	✓		
Implementing Actions:			
(a) Develop and regularly update functional plans for infrastructure systems.			✓
(b) Develop, adopt, and regularly update local or community-sensitive level-of service standards for infrastructure systems.			✓
Analysis: **The Proposed Action supports the objective and above-noted policies relating to improving the planning and management of infrastructure systems. The Proposed Action involves the development of a low-density master-planned residential community in an area designated for future growth by the Maui Island Plan, adjacent to similar existing uses. All infrastructure will be developed concurrent with the project. The Applicant will provide its fair share contribution for regional roadway improvements in accordance with its existing land use approvals. In addition, utility infrastructure for the Proposed Action will be placed primarily underground.**			
J. PROMOTE SUSTAINABLE LAND USE AND GROWTH MANAGEMENT			
Goal: Community character, lifestyles, economies, and natural assets will be preserved by managing growth and using land in a sustainable manner.	✓		
Objective:			
(1) Improve land use management and implement a directed-growth strategy.	✓		
Policies:			

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
(a) Establish, map, and enforce urban- and rural-growth limits.			✓
(b) Direct urban and rural growth to designated areas.	✓		
(c) Limit the number of visitor-accommodation units and facilities in Community Plan Areas.			✓
(d) Maintain a sustainable balance between the resident, part-time resident, and visitor populations.	✓		
(e) Encourage redevelopment and infill in existing communities on lands intended for urban use to protect productive farm land and open-space resources.			✓
(f) Discourage new entitlements for residential, resort, or commercial development along the shoreline.			✓
(g) Restrict development in areas that are prone to natural hazards, disasters, or sea-level rise.	✓		
(h) Direct new development in and around communities with existing infrastructure and service capacity, and protect natural, scenic, shoreline, and cultural resources.	✓		
(i) Establish and maintain permanent open space between communities to protect each community's identity.	✓		
(j) Support the dedication of land for public uses.	✓		
(k) Preserve the public's rights of access to and continuous lateral access along all shorelines.	✓		
(l) Enable existing and future communities to be self-sufficient through sustainable land use planning and management practices.			✓
(m) Protect summits, slopes, and ridgelines from inappropriate development.			✓
Implementing Actions:			
(a) Regularly update urban- and rural-growth boundaries and their maps.			✓
(b) Establish transfer and purchase of development rights programs.			✓
(c) Develop and adopt a green infrastructure plan.			✓
(d) Develop studies to help determine a sustainable social, environmental, and economic carrying capacity for each island.			✓
(e) Identify and define resort-destination areas.	✓		
Analysis: **The Proposed Action supports the goal, objective, and above-noted policies relating to the management of growth. The project will be implemented in an area designated for growth and concurrent with infrastructure systems to service the project. In addition, the project's location, mostly mauka of Makena Alanui Road, places it primarily outside of the tsunami evacuation zone, flood hazard zones, and the projected 3.2-foot sea-level rise hazard area. Although a portion of the land plan located along the shoreline lies within these areas, no vertical structures are planned to be developed within this area. Furthermore, as part of the environmental review process, studies relative to air quality, noise, and nearshore marine water quality were carried out to assess potential impacts on these resources and establish appropriate mitigation measures. The Proposed Action is located within the Urban Growth Boundary (UGB) for Makena as set forth in the Maui Island Plan.**			
Objective:			
(2) Improve planning for and management of agricultural lands and rural areas.			✓
Policies:			
(a) Protect prime, productive, and potentially productive agricultural lands to maintain the islands' agricultural and rural identities and economies.			✓

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
(b) Provide opportunities and incentives for self-sufficient and subsistence homesteads and farms.			✓
(c) Discourage developing or subdividing agriculturally designated lands when non- agricultural activities would be primary uses.			✓
(d) Conduct agricultural-development planning to facilitate robust and sustainable agricultural activities.			✓
Implementing Actions:			
(a) Inventory and protect prime, productive, and potentially productive agricultural lands from competing non-agricultural land uses.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above objective and policies related to the planning and management of agricultural lands.**			
Objective:			
(3) Design all developments to be in harmony with the environment and to protect each community's sense of place.	✓		
Policies:			
(a) Support and provide incentives for green building practices.	✓		
(b) Encourage the incorporation of green building practices and technologies into all government facilities to the extent practicable.			✓
(c) Protect and enhance the unique architectural and landscape characteristics of each Community Plan Area, small town, and neighborhood.	✓		
(d) Ensure that adequate recreational areas, open spaces, and public-gathering places are provided and maintained in all urban centers and neighborhoods.	✓		
(e) Ensure business districts are distinctive, attractive, and pedestrian-friendly destinations.			✓
(f) Use trees and other forms of landscaping along rights-of-way and within parking lots to provide shade, beauty, urban-heat reduction, and separation of pedestrians from automobile traffic in accordance with community desires.	✓		
(g) Where appropriate, integrate public-transit, equestrian, pedestrian, and bicycle facilities, and public rights-of-way as design elements in new and existing communities.	✓		
(h) Ensure better connectivity and linkages between land uses.	✓		
(i) Adequately buffer and mitigate noise and air pollution in mixed-use areas to maintain residential quality of life.			✓
(j) Protect rural communities and traditional small towns by regulating the footprint, locations, site planning, and design of structures.	✓		
(k) Support small-town revitalization and preservation.			✓
(l) Facilitate safe pedestrian access, and create linkages between destinations and within parking areas.	✓		
Implementing Actions:			
(a) Establish design guidelines and standards to enhance urban and rural environments.	✓		
(b) Provide funding for civic-center and civic-space developments.			✓
(c) Establish and enhance urban forests in neighborhoods and business districts.	✓		
Analysis: The Proposed Action supports the objective and above-noted policies relating to designing in harmony with the environment and protecting each community's sense of place. The Proposed Action aims to develop a low-density master-planned residential community in an area suited for this type of development, amid similar communities. The Proposed Action will include a community gathering place to promote social and cultural interaction among the residents. The Proposed Action will involve a system of pedestrian, bicycle, and golf cart pathways to facilitate			

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
alternative forms of transportation. This system will connect to the existing network of pathways throughout Makena. The Proposed Action will also preserve a dryland forest unique to the natural habitat found in the area.			
Objective:			
(4) Improve and increase efficiency in land use planning and management.	✓		
Policies:			
(a) Assess the cumulative impact of developments on natural ecosystems, natural resources, wildlife habitat, and surrounding uses.		✓	
(b) Ensure that new development projects requiring discretionary permits demonstrate a community need, show consistency with the General Plan, and provide an analysis of impacts.		✓	
(c) Encourage public and private partnerships to preserve lands of importance, develop housing, and meet the needs of residents.	✓		
(d) Promote creative subdivision designs that implement best practices in land development, sustainable management of natural and physical resources, increased pedestrian and bicycle functionality and safety, and the principles of livable communities.	✓		
(e) Coordinate with Federal, State, and County officials in order to ensure that land use decisions are consistent with County plans and the vision local populations have for their communities.	✓		
(f) Enable greater public participation in the review of subdivisions.		✓	
(g) Improve land use decision making through the use of land- and geographic information systems.			✓
Implementing Actions:			
(a) Institute a time limit and sunsetting stipulations on development entitlements and their implementation.			✓
Analysis: **The Proposed Action supports the objective and above-noted policies relating to improving land use planning. As part of the environmental review process, studies on flora and fauna, air quality, noise, and nearshore marine water quality were carried out to assess the potential impacts of the project and establish mitigation measures, as appropriate. In addition, the project was evaluated in relation to its conformance with land use plans, policies, and controls as described in Chapter III of the EIS document.**			
K. STRIVE FOR GOOD GOVERNANCE			
Goal: Government services will be transparent, effective, efficient, and responsive to the needs of residents.		✓	
Objective:			
(1) Strengthen governmental planning, coordination, consensus building, and decision making.			✓
Policies:			
(a) Plan and prepare for the effects of social, demographic, economic, and environmental shifts.			✓
(b) Plan for and address the possible implications of Hawaiian sovereignty.			✓
(c) Encourage collaboration among government agencies to reduce duplication of efforts and promote information availability and exchange.			✓
(d) Expand opportunities for the County to be involved in and affect State and Federal decision making.			✓
(e) Plan and prepare for large-scale emergencies and contingencies.			✓
(f) Improve public awareness about preparing for natural hazards, disasters, and evacuation plans.			✓

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
(g) Improve coordination among Federal, State, and County agencies.			✓
Implementing Actions:			
(a) Develop policies, regulations, and programs to protect and enhance the unique character and needs of the County's various communities.			✓
(b) Evaluate and if necessary, recommend modifications to the County Charter that could result in a possible change to the form of governance for Maui County.			✓
(c) Study and evaluate the feasibility and implications of voting in Maui County Council elections.			✓
(d) Study and evaluate the feasibility of authorizing town governments in Maui County.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above objective and policies related to the improvement of governmental planning and decision-making processes.**			
Objective:			
(2) Promote civic engagement.		✓	
Policies:			
(a) Foster consensus building through in-depth, innovative, and accessible public participatory processes.		✓	
(b) Promote and ensure public participation and equal access to government among all citizens.			✓
(c) Encourage a broad cross-section of residents to volunteer on boards and commissions.			✓
(d) Encourage the State to improve its community-involvement processes.			✓
(e) Support community-based decision making.		✓	
(f) Expand advisory functions at the community level.			✓
(g) Expand opportunities for all members of the public to participate in public meetings and forums.			✓
(h) Facilitate the community's ability to obtain relevant documentation.		✓	
(i) Increase voter registration and turnout.			✓
Implementing Actions:			
(a) Implement two-way communication using audio-visual technology that allows residents to participate in the County's planning processes.			✓
(b) Ensure and expand the use of online notification of County business and public meetings, and ensure the posting of all County board and commission meeting minutes.			✓
(c) Explore funding mechanisms to improve participation by volunteers on boards and commissions.			✓
(d) Develop a project-review process that mandates early and ongoing consultation in and with communities affected by planning and land use activities.			✓
Analysis: The Proposed Action supports the objective and above-noted policies related to promoting civic engagement. Although the Proposed Action is a private sector initiative, the Applicant has met with stakeholders and community members in an effort to promote dialogue and input on the Proposed Action. A guiding principle of the Applicant is to be a "Good Neighbor" and contribute to and support a healthy community and place.			
Objective:			

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
(3) Improve the efficiency, reliability, and transparency of County government's internal processes and decision making.			✓
Policies:			
(a) Use advanced technology to improve efficiency.			✓
(b) Simplify and clarify the permitting process to provide uniformity, reliability, efficiency, and transparency.			✓
(c) Improve communication with Lanaʻi and Molokaʻi through the expanded use of information technologies, expanded staffing, and the creation and expansion of government-service centers.			✓
(d) Ensure that laws, policies, and regulations are internally consistent and effectuate the intent of the General Plan.			✓
Implementing Actions:			
(a) Update the County Code to be consistent with the General Plan.			✓
(b) Identify and update County regulations and procedures to increase the productivity and efficiency of County government.			✓
(c) Develop local level-of-service standards for infrastructure, public facilities, and services.			✓
(d) Implement plans through programs, regulations, and capital improvements in a timely manner.			✓
(e) Expand government online services.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above objective and policies related to the improvement of the County government's efficiency and transparency.**			
Objective:			
(4) Adequately fund in order to effectively administer, implement, and enforce the General Plan.			✓
Policies:			
(a) Adequately fund, staff, and support the timely update and implementation of planning policy, programs, functional plans, and enforcement activities.			✓
(b) Ensure that the County's General Plan process provides for efficient planning at the County, island, town, and neighborhood level.			✓
(c) Encourage ongoing professional development, education, and training of County employees.			✓
(d) Encourage competitive compensation packages for County employees to attract and retain County personnel.			✓
(e) Enable the County government to be more responsive in implementing our General Plan and Community Plans.			✓
(f) Review discretionary permits for compliance with the Countywide Policy Plan.			✓
(g) Strengthen the enforcement of County, State, and Federal land use laws.			✓
Implementing Actions:			
(a) Establish penalties to ensure compliance with County, State, and Federal land use laws.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above objective and policies related to the County adequately funding the administration, implementation, and enforcement of the General Plan.**			
Objective:			
(5) Strive for County government to be a role model for implementing cultural and environmental policies and practices.			✓
Policies:			

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
(a) Educate residents on the benefits of sustainable practices.			✓
(b) Encourage the retention and hiring of qualified professionals who can improve cultural and environmental practices.			✓
(c) Incorporate environmentally sound and culturally appropriate practices in government operations and services.			✓
(d) Encourage all vendors with County contracts to incorporate environmentally sound and culturally appropriate practices.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above objective and policies related to supporting the County government in being a role model for implementing cultural and environmental policies and practices.**			
L. MITIGATE CLIMATE CHANGE AND WORK TOWARD RESILIENCE			
Goal: Minimize the causes and negative effects of climate change.	✓		
Objective:			
(1) Lower carbon emissions levels to mitigate climate change impacts and limit the rate of global warming.	✓		
Policies:			
(a) Increase reforestation efforts by encouraging residents and visitors to plant non-invasive gardens and trees.	✓		
(b) Improve communication, coordination, and collaboration among those that work to mitigate climate change impacts.			✓
(c) Promote the teaching and use of regenerative agriculture.	✓		
(d) Invest in infrastructure that is not dependent on fossil fuels and utilizes renewable energy.	✓		
(e) Improve efforts to mitigate and plan for the impact of natural disasters and global warming.		✓	
(f) Encourage the building industry to use environmentally sustainable materials, technology, and site planning.	✓		
(g) Reduce air, noise, light, land, and water pollution, and reduce Maui County's contribution to global climate change.		✓	
(h) Plan and prepare for and educate visitors and residents about the possible effects of global warming.		✓	
(i) Promote programs and incentives that decrease greenhouse-gas emissions and improve environmental stewardship.			✓
(j) Support the development of carbon-emission standards and an incentive program aimed at achieving County carbon-emission goals.			✓
Implementing Actions:			
(a) Implement Federal and State policies that require a reduction of greenhouse-gas emissions.			✓
(b) Establish a Countywide Climate Action Plan			✓
(c) Develop programs that assist residents and businesses with obtaining access to renewable energy sources.			✓
(d) Revise laws to support neighborhood designs that incorporate the use of renewable energy sources that are appropriate for island living.			✓
(e) Incorporate planting of native and indigenous trees as a major component of Urban Design to both cool neighborhoods and reduce carbon dioxide.	✓		
(f) Coordinate with State, County, and private landowners in the development of forestry and prioritizing of native and indigenous trees to reduce carbon dioxide.			✓
(g) Strongly support efforts to restore and improve Maui County's watersheds for			✓

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
the purpose of improving the water supply, controlling carbon dioxide levels, decreasing soil runoff, and reducing coastal flooding.			
Analysis: **The Proposed Action supports the goal, objective, and above-noted policies relating to climate change mitigation. A Sustainability Report has been prepared for the Proposed Action, which sets forth both guiding sustainability principles as well as a program of sustainability measures intended to reduce the environmental footprint of the new community. This program includes Leadership in Energy and Environmental Design (LEED) certification for buildings 500 square feet or larger, the installation of rooftop photovoltaic (PV) panels, and the use of energy-efficient technologies. The Proposed Action will provide pedestrian/bicycle lanes to reduce greenhouse gas emissions and reliance on the automobile. Recycle containers/facilities will also be placed throughout the project area to reduce the amount of solid waste going to the landfill.**			
Objective:			
(2) Reduce the impacts of sea-level rise by acknowledging climate change, adapting, mitigating, and planning accordingly.	✓		
Policies:			
(a) Evaluate development to assess potential short-term and long-term sea-level rise impacts on nearshore environments.		✓	
(b) Improve efforts to mitigate and plan for the impact of sea-level rise.		✓	
(c) Protect undeveloped beaches, dunes, and ecosystems, and restore natural shoreline processes.		✓	
(d) Develop an inventory of private wastewater systems (septic systems, cesspools) that may be affected by sea-level rise.			✓
(e) Strengthen coastal-zone management, re-naturalization of shorelines, where possible, and filtration or treatment of urban and agricultural runoff.		✓	
(f) Educate the construction and landscape industries and property owners about the use of best management practices to prevent erosion and nonpoint source pollution.			✓
(g) Discourage beach hardening processes such as building sea walls and revetments that block movement of the shoreline and can accelerate erosion.			✓
(h) Discourage new entitlements for residential, resort, or commercial development along the shoreline.			✓
(i) Restrict development in areas that are prone to sea-level rise.		✓	
(j) Move or rebuild public facilities away from nearshore environments to account for sea-level rise to the extent reasonable.			✓
(k) Move or rebuild roads that are in sea-level rise inundation zones to the extent reasonable.			✓
(l) Ensure that public or affordable housing projects include siting and design standards that promote equity and resilience for vulnerable populations.	✓		
(m) Identify, research, and evaluate innovative and sustainable financing to support mitigation and adaptation to sea level rise.			✓
Implementing Actions:			
(a) Develop programs to help transition shoreline property owners out of their nearshore locations and develop a long-term plan to stay out of the way of natural beach migration.			✓
(b) Identify buildings, roads, and other infrastructure that are in sea-level rise inundation zones and assist in adaptive efforts, including nature-based solutions, elevation, or moving them away from such zones.			✓
(c) Identify disaster redevelopment alternatives that support resilience-focused adaptation to sea level rise in the event of a catastrophic coastal event.			✓

COUNTYWIDE POLICY PLAN (Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable)	DA	IA	NA
Analysis: **The Proposed Action is consistent with the objective and above-noted policies relating to reducing the impacts of sea-level rise and adapting, mitigating, and planning accordingly. A sea-level rise assessment was carried out on the project to ensure that improvements will not be adversely impacted by projected sea-level rise. No vertical structures are proposed within the 3.2 ft. sea-level rise exposure area. Even in a more drastic scenario, including up to 10 feet of sea-level rise, the proposed development, including the workforce housing units, lies well outside of lands that would be affected by sea-level rise.**			
Objective:			
(3) Significantly increase the use of renewable and green technologies to. promote energy efficiency and energy self-sufficiency.	✓		
Policies:			
(a) Promote the use of locally renewable energy sources, and reward energy efficiency.	✓		
(b) Consider tax incentives and credits for the development of sustainable- and renewable-energy sources.			✓
(c) Expand education about energy conservation and self-sufficiency.			✓
(d) Encourage small-scale energy generation that utilizes wind, sun, water, biowaste, and other renewable sources of energy.	✓		
(e) Expand renewable-energy production.		✓	
(f) Develop public-private partnerships to ensure the use of renewable energy and increase energy efficiency.			✓
(g) Require the incorporation of locally appropriate energy-saving and green building design concepts in all new developments by providing energy-efficient urban design guidelines and amendments to the Building Code.			✓
(h) Encourage the use of sustainable energy to power vehicles.			✓
(i) Promote the retrofitting of existing buildings and new development to incorporate energy-saving design concepts anddevices.	✓		
(j) Encourage green footprint practices.	✓		
(k) Reduce Maui County's dependence on fossil fuels and energy imports.		✓	
(l) Support green building practices such as the construction of buildings that aim to minimize carbon dioxide production, produce renewable energy, and recycle water.	✓		
(m) Promote and support environmentally friendly practices in all energy sectors.			✓
Implementing Actions:			
(a) Adopt an energy-efficiency policy for Maui County government as a model for other jurisdictions.			✓
(b) Adopt a Green Building Code and support green building practices.			✓
Analysis**: The Proposed Action supports the objective and above-noted policies relating to renewable and green technologies. A Sustainability Report has been prepared for the Proposed Action, which sets forth both guiding sustainability principles as well as a program of sustainability measures intended to reduce the environmental footprint of the new community. This program includes LEED certification of buildings 500 square feet or larger as well as the use of energy-efficient technologies.**			

APPENDIX

AA

ANALYSIS OF MAUI ISLAND PLAN

APPENDIX AA.

Analysis of Project Applicability to Maui Island Plan

The Maui Island Plan (MIP) is applicable to the island of Maui only, providing more specific policy-based strategies for population, land use, transportation, public and community facilities, water and wastewater systems, visitor destinations, urban design, and other matters related to future growth.

As provided by Chapter 2.80B, the MIP shall include the following components:

1. *An island-wide land use strategy, including a managed and directed growth plan*
2. *A water element assessing supply, demand and quality parameters*
3. *A nearshore ecosystem element assessing nearshore waters and requirements for preservation and restoration*
4. *An implementation program which addresses the County's 20-year capital improvement requirements, financial program for implementation, and action implementation schedule*
5. *Milestone indicators designed to measure implementation progress of the MIP*

It is noted that Ordinance No. 4004 does not address the component relating to the implementation program. Chapter 2.80B of the Maui County Code, relating to the General Plan, was amended via Ordinance No. 3979, October 5, 2012, to provide that the implementation program component be adopted no later than one (1) year following the effective date of Ordinance No. 4004. In December 2013 and March 2014, the Council approved time extensions for approval and adoption of the implementation chapter of the MIP. The implementation program component of the MIP was adopted as Ordinance No. 4126 on May 29, 2014.

The MIP addresses a number of planning categories with detailed policy analysis and recommendations which are framed in terms of goals, objectives, policies, and implementing actions. These planning categories address the following areas:

1. *Population*
2. *Heritage Resources*
3. *Natural Hazards*
4. *Economic Development*
5. *Housing*
6. *Infrastructure and Public Facilities*
7. *Land Use*

The Proposed Action has been reviewed with respect to pertinent goals, objectives, policies, and implementing actions of the MIP. The analysis is presented in the table below.

The methodology used for assessing a project's relationship to the MIP involves examining the project's applicability to the Plan's goals, objectives, and policies. "Applicability" refers to a project's need, purpose, and effects, and how they advance or promote a particular set of goals, objectives, and priority guidelines. In assessing the relationship between a proposed action and the MIP, an action may be categorized in one of the following groups:

1. **Directly applicable:** the action and its potential effects directly advance or promote the objective, policy, or priority guideline.

   Example: Using a county project to develop a new water source and related transmission facilities as an example, a project of this nature would be directly applicable to the MIP's Objective 6.3.2, which states: *"Increase the efficiency and capacity of the water systems in striving to meet the needs and balance the island's water needs".* As well, this action would directly advance the MIP's Policy 6.3.2.f, which states: *Acquire and develop additional sources of potable water.* The need, purpose, and effects of the proposed new water source project is directly applicable to the foregoing objective and policy.

2. **Indirectly applicable:** the action's potential effects indirectly support or advance the objective, policy, or priority guideline.

   Example: The county water source project cited above supports the MIP's Objective 7.3.2 which states: *"Facilitate more self-sufficient and sustainable communities".* Additionally, this kind of action is indirectly applicable to the related MIP Policy 7.3.2.f, which states: *"Facilitate the development of housing by focusing projects in locations where land and infrastructure costs facilitate the development of affordably-priced housing".* In this case, the principle purpose of the project was not to specifically facilitate the development of affordably-priced housing. However, the project's contribution to adequate infrastructure systems is supportive of the policy. In this instance, the proposed action may be deemed to be indirectly applicable to the objective and policy of the MIP.

3. **Not applicable:** The action and its potential effects have no direct or indirect relationship to the objectives and policies of the Maui Island Plan.

   Example: That same county water source improvement project referenced above may not have direct or indirect linkage to the MIP's Objective 4.2.1, which states: *"Increase the economic contribution of the visitor industry to the island's environmental well-being for the island's residents' quality of life"*. In this case, there is no reasonably deduced direct or indirect relationship between the proposed action and Objective 4.2.1. Hence, the proposed action would be considered not applicable to the objective.

In general, a proposed action's applicability to the MIP is assessed on the basis of the action's direct or indirect relationship to the respective objectives, policies, and implementing actions. It is recognized that the categorization of "applicability" is subject to interpretation and should be appropriately considered in the context of local and regional conditions.

Maui Island Plan Goals, Objectives and Policies Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable	DA	IA	NA
CHAPTER 1 – POPULATION			
Goal:			
1.1 Maui's people, values, and lifestyles thrive through strong, healthy, and vibrant island communities.	✓		
Objective:			
1.1.1 Greater retention and return of island residents by providing viable work, education, and lifestyle options.	✓		
Policies:			
1.1.1.a Expand programs that enable the community to meet the education, employment, housing, and social goals of youth and young adults.		✓	
1.1.1.b Expand housing, transportation, employment, and social opportunities to ensure residents are able to comfortably age within their communities.	✓		
1.1.1.c Measure and track resident satisfaction through surveys and community indicators.			✓
1.1.1.d Support funding for transportation, housing, health care, recreation, and social service programs that help those with special needs (including the elderly and disabled).			✓
Analysis: The Proposed Action supports the goal, objective, and above-noted policy relating to strong, healthy, and vibrant communities. The Proposed Action involves the development of a master-planned residential community in an area suited for this type of development, amid similar communities and employment centers, and in an area designated for growth by the Maui Island Plan (MIP). The Proposed Action will also involve the development of onsite workforce housing units, which will locate affordable housing in close proximity to jobs. According to the Economic and Fiscal Impact Analysis report prepared for the Proposed Action, the construction and operation of the new Mākena Mauka community will generate substantial employment opportunities as well as increased tax revenues to both State and County governments.			
CHAPTER 2 – HERITAGE RESOURCES			
CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES ISSUES			
Goal:			
2.1 Our community respects and protects archaeological and cultural resources while perpetuating diverse cultural identities and traditions.	✓		
Objective:			
2.1.1 An island culture and lifestyle that is healthy and vibrant as measured by the ability of residents to live on Maui, access and enjoy the natural environment, and practice Hawaiian customs and traditions in accordance with Article XII, Section 7, Hawai'i State Constitution, and Section 7-1, Hawai`i Revised Statutes (HRS).	✓		
Policies:			
2.1.1.a Perpetuate the spirit of aloha and celebrate the host Hawaiian culture and other		✓	

Maui Island Plan Goals, Objectives and Policies Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable	DA	IA	NA
ethnic cultures.			
2.1.1.b Perpetuate a respect for diversity and recognize the broad blending of cultures and ethnicities as vital to the quality of life on Maui.	✓		
2.1.1.c Ensure traditional public access routes, including native Hawaiian trails, are maintained for public use.	✓		
2.1.1.d Support the education of visitors and new residents about the customs and etiquette of the Hawaiian culture, as well as other cultures.		✓	
Objective:			
2.2 A more effective and efficient planning and review process that incorporates the best available cultural resources inventory, protection techniques, and preservation strategies.	✓		
Policies:			
2.1.2.a Ensure that the island has a comprehensive and up-to-date inventory of historic and archaeological resources, and their cultural significance.	✓		
2.1.2.b Require the update of existing planning and regulatory mechanisms to protect the natural, cultural, scenic, and historic resources within designated Heritage Areas (see Cultural Resources Overlay/Scenic Corridor Protection Technical Reference Map).			✓
2.1.2.c Ensure that cultural, historic, and archaeological resources are protected for the benefit of present and future generations.	✓		
Objective:			
2.3 Enhance the island's historic, archaeological, and cultural resources.	✓		
Policies:			
2.1.3.a Identify and pursue a listing of the properties and sites on the State and National Register of Historic Places.			✓
2.1.3.b Support the use of easements, dedications, and other mechanisms to acquire, maintain, and protect lands with cultural, archaeological, and historic significance.		✓	
2.1.3.c Support regulations to require developers, when appropriate, to prepare an Archaeological Inventory Survey, Cultural Impact Assessment, and Ethnographic Inventories that are reviewed and commented upon by the Office of Hawaiian Affairs, Native Hawaiian advisory bodies, the State Historic Preservation Division (SHPD), and the Office of Environmental Quality Control, and systematically comply with the steps listed in SHPD's administrative rules, including consultation and monitoring during construction phases of projects.	✓		
2.1.3.d Promote the rehabilitation and adaptive reuse of historic sites, buildings, and structures.		✓	
2.1.3.e Encourage property owners to register historic and archaeological sites on the State and National Register.			✓
2.1.3.f Support opportunities for public involvement with the intent to facilitate the protection and restoration of historic and archeological sites, including consultation with stakeholders.	✓		
2.1.3.g Encourage the resolution of land title questions relating to Land Commission Awards and Royal patents.			✓

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2.1.3.h Ensure compliance with historic preservation laws, and discourage demolition of properties that are determined to be eligible for listing on the National or State Register of Historic Places.	✓		
Analysis: **The Proposed Action supports the goal, objectives, and above-noted policies relating to cultural, historic, and archaeological resources. An Archaeological Literature Review and Surface Survey (ALRSS) was carried out in preparation of the Draft Environmental Impact Assessment (EIS) to identify and properly document any significant historic or cultural sites within the project area. Through this process, a program of avoidance, preservation, and monitoring was recommended and will be adhered to, based on State Historic Preservation Division (SHPD) review requirements, in order to ensure that these sites will not be adversely impacted by the Proposed Action. Consultation with key stakeholders will be conducted during the SHPD historic preservation review process. In addition, a Cultural Impact Assessment (CIA) was carried out to assess the presence of cultural practices within the project area and establish appropriate mitigation measures. The Proposed Action will also involve the development of a community gathering place to foster respect for diversity and recognize the broad blending of cultures and ethnicities as vital to the quality of life on Maui.**			
SHORELINE, REEFS, AND NEARSHORE WATERS			
Goal:			
2.2 An intact, ecologically functional system of reef, shoreline, and nearshore waters that are protected in perpetuity.	✓		
Objective:			
2.2.1 A more comprehensive and community-based ICZM program.	✓		
Policies:			
2.2.1.a Encourage a management system that protects and temporarily rests the reef ecosystems from overuse.			✓
2.2.1.b Support the establishment of additional MMAs and reef replenishment areas.			✓
2.2.1.c Work with appropriate agencies and community members to protect any special managed conservation areas from overuse and ensure that surrounding land uses do not contribute to the degradation of the natural resources, such as ʻAhihi-Kinaʻu Natural Area Reserve, Honolua-Mokulēʻia Bay Marine Life Conservation District, and Makena State Park.	✓		
2.2.1.d Incorporate the following into the MIP, where consistent with the MIP:			
(1) Beach Management Plan for Maui;			✓
(2) Coastal Nonpoint Pollution Control Program Management Plan;			✓
(3) Implementation Plan for Polluted Runoff Control; and			✓
(4) Ocean Resource Management Plan.			✓
2.2.1.e Support greater coordination among governmental agencies involved with the protection of the island's marine resources.			✓
Objective:			
2.2.2 Improved reef health, coastal water quality, and marine life.	✓		
Policies:			

Maui Island Plan Goals, Objectives and Policies Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable	DA	IA	NA
2.2.2.a Create additional mechanisms where needed to contain and control runoff and pollution.	✓		
2.2.2.b Allow extraction of high quality, Class A, low silt sands only when they will be used to protect or restore Maui's shorelines and beaches.			✓
2.2.2.c Carefully manage beach nourishment activities to protect the coastal and marine ecosystem.			✓
2.2.2.d Require, where appropriate, a buffer between landscaped areas and the shoreline, gulches, and streams to reduce the runoff of fertilizers, pesticides, herbicides, and other pollutants into coastal waters.	✓		
2.2.2.e Strictly regulate shoreline armoring in accordance with adopted Shoreline Rules, with an intent to protect the coastal and marine ecosystem.			✓
2.2.2.f Support greater protection of Keālia Pond National Wildlife Refuge through the following:			
(1) Enhancement of marine ecosystems;			✓
(2) Beach and sand dune restoration; and			✓
(3) Expansion of habitat for Maui's threatened or endangered sea turtles, birds, and other species.			✓
2.2.2.g Support the development of regulations to prevent the excessive depletion of fish stocks due to non-sustainable practices and gear such as SCUBA spear-fishing and lay nets, within the context of nearshore ecosystems.			✓
2.2.2.h Encourage the State to conduct a regular census of fish populations and monitor coral health.			✓
2.2.2.i Encourage the State to significantly increase the number of park rangers, enforcement officers, and marine biologists to protect coastal resources.			✓
2.2.2.j Encourage the State to prohibit the collection and exportation of fish, coral, algae, and other marine species for the ornamental and aquarium trade.			✓
Objective:			
2.2.3 Water quality that meets or exceeds State Clean Water Act standards.	✓		
Policies:			
2.2.3.a Reduce the amount of impervious surface and devise site plan standards that aim to minimize storm runoff and NPS pollution.	✓		
2.2.3.b Support the revision of existing regulations to require an Erosion and Sedimentation Control Plan (ESCP) for development activities that may pose a threat to water quality.			✓
2.2.3.c Require an on-site monitoring program, where applicable, when grading may pose a threat to water quality or when recommended in the ESCP.			✓
2.2.3.d Avoid development actions that impair Maui's reef systems and remove identified stressors.			✓
2.2.3.e Phase out cesspools and restrict the use of septic systems in ecologically sensitive coastal areas by converting to environmentally-friendly alternative sewage treatment systems, and connecting to central sewerage systems when and where feasible.			✓
2.2.3.f Prohibit the development of new wastewater injection wells, except when unavoidable for public health and safety purposes.			✓

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2.2.3.g Ensure that the County upholds its affirmative duty under the Clean Water Act by monitoring and reducing point and NPS pollution to help safeguard coastal waters.			✓
Objective:			
2.2.4 Acquire additional shoreline lands and shoreline access rights.			✓
Policies:			
2.2.4.a Promote the use of conservation easements, land trusts, transfer and purchase of development rights, and mitigation banking.			✓
2.2.4.b Require the dedication of public beach and rocky shoreline access ways to and along the shoreline where it serves a practical public interest as a condition of development or subdivision approval; future subdivisions and developments shall be consistent with and effectuate, to the extent practicable, the *Shoreline Access Inventory Update - Final Report* (March 2005), and its updates.			✓
2.2.4.c Incorporate the *Shoreline Access Inventory Update - Final Report* (March 2005), and its regular updates, into this plan.			✓
2.2.4.d Identify access points while further acquiring key shoreline parcels and easement rights to enhance and protect beach access and shoreline recreation.			✓
Analysis: **The Proposed Action supports the goal and above-noted objective and policies relating to shoreline, reef, and nearshore waters. As part of the environmental review process, a Water Quality Assessment and Marine Biological Survey have been conducted to assess potential impacts from the project on the nearshore environment. A comprehensive program of Best Management Practices (BMPs) and a drainage plan inclusive of Low Impact Development (LID) techniques will be utilized to minimize the potential for construction and post-construction-related drainage impacts.**			
WATERSHEDS, STREAMS, AND WETLANDS ISSUES			
Goal:			
2.3 Healthy watersheds, streams, and riparian environments.	✓		
Objective:			
2.3.1 Greater protection and enhancement of watersheds, streams, and riparian environments.		✓	
Policies:			
2.3.1.a All present and future watershed management plans shall incorporate concepts of ahupua‘a management based on the interconnectedness of upland and coastal ecosystems/species.		✓	
2.3.1.b Continue to support and be an active member of watershed partnerships.			✓
2.3.1.c Support the establishment of regional water trusts, composed of public and private members, to manage water resources.			✓
2.3.1.d Support regulations to require developments to utilize ahupua‘a management practices.			✓
2.3.1.e Work with private and non-profit entities to educate the public about the connection between upland activities within the watershed and the impacts on nearshore ecosystems and coral reefs.			✓

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2.3.1.f Provide adequate funding and staff to develop and implement watershed protection plans and policies, including acquisition and management of watershed resources and land.			✓
2.3.1.g Encourage the State to mandate instream assessment to provide adequate water for native species.			✓
2.3.1.h Maui will protect all watersheds and streams in a manner that guarantees a healthy, sustainable riparian environment.		✓	
Objective:			
2.3.2 Decreased NPS and point source pollution.	✓		
Policies:			
2.3.2.a Enforce water pollution related standards and codes.			✓
2.3.2.b Support the use of LID Techniques such as those described in the State of Hawai'i LID Practitioner's Guide (June 2006), as amended.	✓		
2.3.2.c Encourage farmers and ranchers to use agricultural BMPs to address NPS pollution.			✓
Objective:			
2.3.3 Preserve existing wetlands and improve and restore degraded wetlands.			✓
Policies:			
2.3.3.a Prohibit the destruction and degradation of existing upland, mid-elevation, and coastal wetlands.			✓
2.3.3.b Support and fund wetland protection and improvement, and restoration of degraded wetlands.			✓
2.3.3.c Where applicable, require developers to provide a wetland protection buffer and/or other protective measures around and between development and wetland resources.			✓
Objective:			
2.3.4 Greater preservation of native flora and fauna biodiversity to protect native species.	✓		
Policies:			
2.3.4.a Work with appropriate agencies to eliminate feral ungulate populations and invasive species.	✓		
2.3.4.b Encourage the State to provide adequate funding to preserve biodiversity, protect native species, and contain or eliminate invasive species.			✓
2.3.4.c Support the work of conservation groups and organizations that protect, reestablish, manage, and nurture sensitive ecological areas and threatened indigenous ecosystems.			✓
Objective:			
2.3.5 Limited development in critical watershed areas.			✓
Policies:			
2.3.5.a Discourage development and subdivision of land within critical watersheds and in areas susceptible to high erosion and sediment loss.			✓

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2.3.5.b Designate critical watershed areas as conservation lands.			✓
2.3.5.c Strongly encourage new subdivisions and developments that are proximate to environmentally sensitive watershed resources to prepare and implement CSD plans.			✓
Objective:			
2.3.6 Enhance the vitality and functioning of streams, while balancing the multiple needs of the community.	✓		
Policies			
2.3.6.a Protect and enhance natural streambeds and discourage stream alteration.	✓		
2.3.6.b Work with appropriate agencies to establish minimum stream flow levels and ensure adequate stream flow to sustain riparian ecosystems, traditional kalo cultivation, and self-sustaining ahupua'a.			✓
2.3.6.c Respect and participate in the resolution of native Hawaiian residual land and water rights issues (kuleana lands, ceded lands, and historic agricultural and gathering rights).			✓
2.3.6.d Ensure that stream flows implement laws and policies found in the State Constitution and Water Code.			✓
2.3.6.e Work with appropriate agencies and stakeholders to establish minimum stream flow levels, promote actions to support riparian habitat and the use of available lo'i, and maintain adequate flows for the production of healthy kalo crops.			✓
Analysis: **The Proposed Action supports the goal and above-noted objectives and policies relating to watersheds, streams, and wetland issues. The master plan for the Proposed Action has been formulated to prioritize the retention of the existing alignment of streams and gulches that run through the project area. As such, alteration of these features will be minimized to the extent practicable and be limited to that needed to accommodate necessary infrastructure improvements such as roadway and culvert crossings. Also, a comprehensive program of BMPs and a drainage plan inclusive of LID techniques will be used to minimize the potential for construction and post-construction-related drainage impacts. A Flora and Fauna Survey was completed as part of the environmental review process to determine the presence of indigenous species and habitat within the project area, and to advance mitigation measures aimed at protecting and avoiding impacts to these species and habitats. The Proposed Action also involves the maintenance and protection of a dryland forest within the project area.**			
WILDLIFE AND NATURAL AREAS			
Goal:			
2.4 Maui's natural areas and indigenous flora and fauna will be protected.	✓		
Objective:			
2.4.1 A comprehensive management strategy that includes further identification, protection, and restoration of indigenous wildlife habitats.		✓	
Policies:			
2.4.1.a Identify and inventory the following:			
(1) Natural, recreational, and open space resources;	✓		
(2) Flora and fauna with medium, high, and very high concentrations of threatened or endangered species; and	✓		

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	(3) Location and extent of invasive species.			✓
2.4.1.b	Require flora and fauna assessment and protection plans for development in areas with concentrations of indigenous flora and fauna; development shall comply with the assessment and protection plan and shall use the avoidance, minimization, and mitigation approach respectively, with an emphasis on avoidance.	✓		
2.4.1.c	Support the implementation of Hawai`i's Comprehensive Wildlife Conservation Strategy (October 2005).			✓
Objective:				
2.4.2	A decrease in invasive species through programs and partnerships that eradicate undesirable species and protect native habitat.			✓
Policies:				
2.4.2.a	Prevent the introduction of invasive species at all of Maui's airports and harbors.			✓
2.4.2.b	Encourage the State to increase funding in support of invasive species interception, control, and eradication.			✓
2.4.2.c	Encourage the State to develop programs that allow students to participate in invasive species eradication projects.			✓
Objective:				
2.4.3	Greater protection of sensitive lands, indigenous habitat, and native flora and fauna.	✓		
Policies:				
2.4.3.a	Secure an interconnected network of sensitive lands, greenways, watercourses, and habitats.			✓
2.4.3.b	Protect Maui's sensitive lands (see Sensitive Lands on Protected Areas Diagrams).			✓
2.4.3.c	Promote innovative environmental-planning methods and site-planning standards that preserve and re-establish indigenous flora and fauna habitat, to preserve and restore connected habitat corridors and open space.			✓
2.4.3.d	Utilize protection tools such as conservation easements, land trusts, land banks, Purchase of Developments Rights (PDRs), Transfer of Development Rights (TDRs), and other stewardship tools to acquire natural areas			✓
2.4.3.e	Encourage discussions with communities to designate heritage areas that protect recreational and cultural lifestyles and resources.			✓
2.4.3.f	Support the expansion of Haleakalā National Park, and the creation of new national parks, where appropriate and supported by local communities.			✓
2.4.3.g	Encourage reforestation efforts that increase native species' habitat.	✓		
2.4.3.h	Utilize the Natural Area Partnership Program (NAPP) and other programs to protect natural lands.			✓
2.4.3.i	Support increased dedicated funding for the acquisition, protection, restoration, or preservation of important natural areas or open space through the following: grants from the Land and Water Conservation Fund; dedicated funding from real property taxes or other appropriate revenues; bond issues; real estate transfer tax; revenues from the Transient Accommodations Tax; development			✓

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mitigation fees; and other appropriate funding sources.			
Analysis: **The Proposed Action supports the goal and above-noted objectives and policies relating to wildlife and natural areas. As noted above, a Flora and Fauna Survey was carried out as part of the environmental review process to document any endangered or threatened species within the project area. The study provided recommended mitigation strategies aimed at minimizing potential impacts to flora and fauna resources in the area. In addition, the Proposed Action involves the preservation of a dryland forest within the project area as well as the maintenance of open space resources.**			
SCENIC RESOURCES			
Goal:			
2.5 Maui will continue to be a beautiful island steeped in coastal, mountain, open space, and historically significant views that are preserved to enrich the residents' quality of life, attract visitors, provide a connection to the past, and promote a sense of place.	✓		
Objective:			
2.5.1 A greater level of protection for scenic resources.	✓		
Policies:			
2.5.1.a Protect views to include, but not be limited to, Haleakalā, ʻĪao Valley, the Mauna Kahalawai (West Maui Mountains), Puʻu Ōʻlaʻi, Kahoʻolawe, Molokini, Molokaʻi, and Lānaʻi, Mauna Kea, Mauna Loa, sea stacks, the Pacific Ocean, and significant water features, ridgelines, and landforms.	✓		
2.5.1.b Identify, preserve, and provide ongoing management of important scenic vistas and open space resources, including mauka-to-makai and makai-to-mauka view planes.	✓		
2.5.1.c Protect "night sky" resources by encouraging the implementation of ambient light ordinances and encouraging conversion of all sources that create excessive light pollution, affecting our ability to view the stars.	✓		
2.5.1.d Protect ridgelines from development where practicable to facilitate the protection of public views.			✓
2.5.1.e Protect scenic resources along Maui's scenic roadway corridors.	✓		
Objective:			
2.5.2. Reduce impacts of development projects and public-utility improvements on scenic resources.	✓		
Policies:			
2.5.2.a Enforce the policies and guidelines of the SMA regarding the protection of views.			✓
2.5.2.b Require any new subdivision of land, development, or redevelopment adjacent to a "high" or "exceptional" scenic corridor to submit an impact assessment of the project's scenic impacts; this assessment shall use the avoidance, minimization, and mitigation steps respectively, with an emphasis on avoidance.			✓
2.5.2.c Require appropriate building setbacks and limits on wall heights to protect views along scenic corridors.			✓

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2.5.2.d Encourage the State of Hawai`i Board of Land and Natural Resources to deny any development within the State Conservation District that interferes with a scenic landscape or disrupts important open space resources.			✓
2.5.2.e Require Urban Design and Review Board (UDRB) review and approval of utility poles, facilities, and other visible infrastructure improvements along scenic corridors.			✓
2.5.2.f Ensure little or no effect on scenic resources from utility improvements, primarily power poles.			✓
2.5.2.g Protect scenic vistas from intrusion by power poles.	✓		
Objective:			
2.5.3 Greater protection of and access to scenic vistas, access points, and scenic lookout points.			✓
Policy:			
2.5.3.a Protect, enhance, and acquire access to Maui's scenic vistas and resources.		✓	
Analysis: **The Proposed Action supports the goal and above-noted objectives and policies relating to scenic resources. The Proposed Action has been designed with careful consideration given to community input obtained during the planning process, to complement and enhance existing development within the Makena Resort. Particular attention would be given to the placement of buildings during the design process to arrive at a plan that is believed to be both sensitive and place-appropriate to the surrounding community. A View Analysis, providing "before" and "after" perspectives of the proposed new community from public vantage points has been prepared to demonstrate the low profile and low density of the project. All electrical infrastructure for the project will be placed underground to reduce the visual impact of utility infrastructure improvements on scenic resources.**			
CHAPTER 3 – NATURAL HAZARDS			
Goal:			
3.1 Maui will be disaster resilient.		✓	
Objective:			
3.1.1 Increased inter-agency coordination.		✓	
Policy:			
3.1.1.a Reinforce the island's preparedness capacity by:			
(1) Applying the latest data-gathering techniques/technology;			✓
(2) Pursuing funding opportunities;			✓
(3) Improving monitoring and advance warning systems;		✓	
(4) Fostering public awareness; and			✓
(5) Working with external agencies to coordinate disaster mitigation and response.		✓	
Objective:			
3.1.2 Greater protection of life and property.		✓	

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Policies:			
3.1.2.a Identify critical infrastructure, lifelines, roads, and populations that are vulnerable to coastal hazards, and encourage strategic retreat and relocation to safer areas.			✓
3.1.2.b Consider the location of dams, reservoirs, holding ponds, and other water-containing entities that are upstream of inhabited areas to anticipate, avoid, and mitigate inundation risks, and discourage new development in areas where possible inundation hazards may exist.			✓
3.1.2.c Strengthen current development standards to minimize destruction of land and property.			✓
3.1.2.d Encourage the use of construction techniques that reduce the potential for damage from natural hazards.		✓	
3.1.2.e Increase the County's resilience to drought.			✓
3.1.2.f Increase food and energy security through local production and storage.			✓
Objective:			
3.1.3 A more coordinated emergency response system that includes clearly defined and mapped evacuation routes.		✓	
Policy:			
3.1.3.a Identify and expand shelter facilities and evacuation routes away from areas susceptible to natural hazards.		✓	
Objective:			
3.1.4 A more educated and involved public that is aware of and prepared for natural hazards.			✓
Policies:			
3.1.4.a Promote public education and involvement related to natural hazards awareness and preparedness.			✓
3.1.4.b Coordinate a multi-agency effort to establish and promote a comprehensive public education program that will focus on practical approaches to preparedness, damage prevention, and hazard mitigation.			✓
Analysis: **The Proposed Action supports the goal and above-noted objective and policies relating to natural hazards. The project will be implemented in an area designated for growth by the MIP and concurrent with infrastructure systems to service the project. In addition, the project's location, mostly mauka of Makena Alanui Road, places it primarily outside of the tsunami evacuation zone, flood hazard zones, and the projected 3.2-foot sea-level rise hazard area. Although a portion of the land plan located along the shoreline does lie within these areas, no vertical structures are planned to be developed within this area. The proposed development will incorporate design features to increase resilience to natural hazards and with consideration to evacuation routes.**			
CHAPTER 4 – ECONOMIC DEVELOPMENT			
ECONOMIC DIVERSIFICATION			
Goal:			
4.1 Maui will have a balanced economy composed of a variety of industries that offer employment opportunities and well-paying jobs and a business	✓		

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environment that is sensitive to resident needs and the island's unique natural and cultural resources.			
Objective:			
4.1.1 A more diversified economy.	✓		
Policies:			
4.1.1.a Encourage an economy that is driven by innovation, research and development, and human resource development, including but not limited to, increasing technology- and knowledge-based sectors to be a major component in Maui County's economic base.			✓
4.1.1.b Support the creation of new jobs and industries that provide a living wage.	✓		
4.1.1.c Facilitate and expedite permits and approvals.			✓
4.1.1.d Develop linkages and partnerships among international research and development activities and Maui businesses.			✓
Objective:			
4.1.2 Increase activities that support principles of sustainability.	✓		
Policies:			
4.1.2.a Support industries that are sustainable, and culturally and environmentally sensitive.	✓		
4.1.2.b Encourage and support local businesses.		✓	
4.1.2.c Substitute imports with locally-produced services and products where practicable.			✓
4.1.2.d Support the development of economic development clusters in targeted industry sectors.			✓
4.1.2.e Encourage all businesses to save energy, water, and other resources.			✓
Objective:			
4.1.3 Improve the island's business climate.	✓		
Policies:			
4.1.3.a Upgrade, maintain the quality of, and improve access to telecommunications infrastructure.	✓		
4.1.3.b Ensure an adequate supply of affordable workforce housing.	✓		
4.1.3.c Develop neighborhoods and communities that are attractive to the workforce of a diversified economy.	✓		
4.1.3.d Encourage, nurture, and reward entrepreneurship and innovation.			✓
4.1.3.e Encourage employers to establish incentive programs. Support flexibility in workforce policies compatible with business and quality of life goals.			✓
4.1.3.f Assist community development organizations with revitalization and development of neighborhoods and communities that are attractive to the workforce of a diversified economy.			✓

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Analysis: **The Proposed Action supports the goal and above-noted objectives and policies relating to economic diversification. According to the Economic and Fiscal Impact Analysis report prepared for the subject project, the construction and operation of the new community will generate substantial employment opportunities as well as increased revenues to both the State and County governments. The Proposed Action will create jobs and encourage spending, both in the short term for construction contractors and supplies, and in the long term with employees. The Proposed Action seeks to support the visitor industry and population by providing resort-style residential accommodations in an existing resort area and within an Urban Growth Boundary (UGB) as set forth by the MIP. Through the Proposed Action, the local economy will benefit from job creation and increased resident spending. In addition, as part of the project, residential workforce housing units will be developed in an effort to provide opportunities for local families to reside in the Makena region in proximity to resort employment opportunities.**			
TOURISM			
Goal:			
4.2 A healthy visitor industry that provides economic well-being with stable and diverse employment opportunities.		✓	
Objective:			
4.2.1 Increase the economic contribution of the visitor industry to the island's environmental well-being for the island's residents' quality of life.		✓	
Policies:			
4.2.1.a Engage the visitor industry in the growth of emerging sectors where practicable.			✓
4.2.1.b Support the implementation of the Maui County TSP, when consistent with the MIP.			✓
4.2.1.c Focus economic growth in the visitor industry through enhanced visitor experiences and an emphasis on attracting higher-spending.			✓
4.2.1.d Provide a rich visitor experience, while protecting the island's natural beauty, culture, lifestyles, and aloha spirit.		✓	
4.2.1.e Diversify the tourism industry by supporting appropriate niche activities such as ecotourism, cultural tourism, voluntourism, ag-tourism, health and wellness tourism, educational tourism, medical tourism, and other viable tourism-related businesses in appropriate locations.			✓
4.2.1.f Recognize the important economic contributions that the visitor industry makes and support a healthy and vibrant visitor industry.			✓
4.2.1.g Support the increased availability of kamaʻāina discount programs.			✓
Objective:			
4.2.2 Comprehensively manage future visitor-unit expansion.		✓	
Policies:			
4.2.2.a Mitigate the impact of tourism on the host culture, natural environment, and resident lifestyles.		✓	
4.2.2.b Allow, where permitted by the community plan, the development of business hotels and small, sensitively-designed inns.			✓
4.2.2.c Manage impacts from transient vacation rentals, hotels, bed and breakfast units, timeshares, and resort condominiums on residential communities, public			✓

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infrastructure, and community facilities.			
4.2.2.d Discourage supplanting of existing island housing to visitor accommodations that may have a negative impact on long-term rental housing, price of housing, and price of land.			✓
4.2.2.e Allow the designation of retreat/mini-conference centers in appropriate locations through the community plan process.			✓
4.2.2.f Community plans should consider establishing standards such as limits on building size, room count, and the number of inns, if any, that will be allowed in small towns.			✓
Objective:			
4.2.3 Maximize residents' benefits from the visitor industry.			✓
Policies:			
4.2.3.a Promote a desirable island population by striving to not exceed an island-wide visitor population of roughly 33 percent of the resident population.			✓
4.2.3.b Use the required General Plan Annual Status Report to monitor trends related to residents and visitors.			✓
Analysis: **The Proposed Action is indirectly applicable to the goal, objectives, and policies related to tourism. Pursuant to conditions attached to the land use entitlement approvals for the Proposed Action, the Applicant will continue to maintain the Makena Landing and Maluaka beach parks, and construct additional beach parking stalls in the area. This will help to mitigate the impact of tourism on the host culture and positively impact the visitor experience.**			
AGRICULTURE			
Goal:			
4.3 Maui will have a diversified agricultural industry contributing to greater economic, food, and energy security and prosperity.	✓		
Objective:			
4.3.1 Strive for at least 85 percent of locally-consumed fruits and vegetables and 30 percent of all other locally-consumed foods to be grown in-State.	✓		
Policies:			
4.3.1.a Strive to substitute food/agricultural product imports with a reliable supply of locally produced food and agricultural products.		✓	
4.3.1.b Facilitate and support the direct marketing/sale of the island's agricultural products to local consumers, through farmers markets and similar venues.			✓
4.3.1.c Encourage growing a diverse variety of crops and livestock to ensure the stewardship of our land while safeguarding consumer safety.	✓		
4.3.1.d Work with the State to regulate and monitor genetically-modified-organism (GMO) crops to ensure the safety of all crops and label all GMO products.			✓
Objective:			
4.3.2 Maintain or increase agriculture's share of the total island economy.			✓
Policies:			
4.3.2.a Encourage the export of the island's agricultural products to offshore markets.			✓

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4.3.2.b Support infrastructure investments at harbors, such as ferry service, airports, and other facilities for the rapid and cost-effective export of island-grown products.			✓
4.3.2.c Encourage the continued viability of sugar cane production, or other agricultural crops, in central Maui and all of Maui Island.			✓
4.3.2.d Work with the State to reduce excise taxes for commercial agricultural products produced within the State.			✓
4.3.2.e Coordinate with appropriate State and Federal Departments and agencies, private shipping companies, and farmers associations to assist in the rapid and cost-effective export of Maui's agricultural products to off-island markets.			✓
Objective:			
4.3.3 Expand diversified agriculture production at an average annual rate of 4 percent.			✓
Policies:			
4.3.3.a Promote the development of locally-grown and ecologically-sound biofuels, aquaculture, and forest products.			✓
4.3.3.b Support the development of farming associations/cooperatives.			✓
4.3.3.c Work with educational institutions and appropriate agencies to provide education and training for farm owners and entrepreneurs.			✓
Analysis: **The Proposed Action is applicable to the above-noted goal, objective, and policies related to agriculture. The proposed land plan incorporates the Nāulu Farm, a non-commercial 2-acre farm operated by the Applicant's ʻŌiwi Resources Stewardship Department. Operations include an animal farm, a greenhouse dedicated to cultivating native species, a vegetable and fruit garden, and an aquaponics system. The greenhouse propagates native species for replanting areas in the project site. The farm's operations are subsidized by a portion of the homeowners' association fees.**			
EMERGING SECTORS			
Goal:			
4.4 A diverse array of emerging economic sectors.			✓
Objective:			
4.4.1 Support increased investment and expanded activity in emerging industries.			✓
Policies:			
4.4.1.a Support the development of and access to state-of-the-art voice, video, and data telecommunications systems and high-speed Internet.			✓
4.4.1.b Attract and assist industries to compete in high technology activities such as those related to renewable energy, green technologies, diversified agriculture, ocean sciences, health sciences, space technologies, and other knowledge-based industries.			✓
4.4.1.c Support new industries that are environmentally and culturally sensitive such as health and wellness, sports and outdoor activities, cultural activities, the arts, film-making, entertainment, and digital media.			✓
4.4.1.d Support a sustainable, culturally sensitive, astronomy industry.			✓

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4.4.1.e Support the continued development of the Maui Research and Technology Park in Kihei, as a center for research and development, education, and diversified economic development, as provided by the Maui County Code.			✓
4.4.1.f Work with appropriate organizations to support the development of high technology clusters around renewable energy, diversified agriculture, ocean sciences, health sciences, and other knowledge-based industries.			✓
Objective:			
4.4.2 Increase the development of renewable energy technologies that are supported by the local community.			✓
Policies:			
4.4.2.a Support the expansion of the renewable energy sector and the use of solar, wind, wave, and biofuel technologies.			✓
4.4.2.b Provide incentives to encourage renewable energy development, the use of green energy technologies, and energy conservation.			✓
4.4.2.c Ensure an adequate supply of land and facilitate permitting to meet the needs for renewable energy technologies such as solar, wind, wave, biofuel, and other technologies, provided that environmental, view plane, and cultural impacts are addressed.			✓
4.4.2.d Support the Maui County Energy Alliance Plan where consistent with the MIP.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above goal, objectives, and policies related to emerging economic sectors.**			
SMALL BUSINESS DEVELOPMENT			
Goal:			
4.5 Small businesses will play a key role in Maui's economy.		✓	
Objective:			
4.5.1 Increase the number of and revenue generated by small businesses and decrease the percentage of small business failures.		✓	
Policies:			
4.5.1.a Provide incentives and support for small businesses and entrepreneurs that incorporate sustainable technologies and practices into their operations, utilize local materials, or produce and sell locally-made goods or services.			✓
4.5.1.b Assist traditional "mom and pop" business establishments.		✓	
4.5.1.c Reduce barriers to small business development.			✓
4.5.1.d Require, where feasible, the government procurement of goods and services from locally-owned, small businesses.			✓
4.5.1.e Support community markets and venues that sell locally-made produce, goods, and services.			✓
Analysis: **The Proposed Action supports the goal, objective, and above-noted policy relating to emerging sectors. According to the Economic and Fiscal Impact Analysis report prepared for the project, the construction and operation of the new community will generate substantial economic benefits including employment opportunities, visitor spending and increase tax revenues to both State and County governments. The Proposed Action will create jobs and encourage spending,**			

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both in the short term for construction contractors and supplies, and in the long term with employees. Many of the companies and related services involved in transactions related to this project will involve small local operations and businesses.			
HEALTH CARE SECTOR			
Goal:			
4.6 Maui will have a health care industry and options that broaden career opportunities that are reliable, efficient, and provide social well-being.			✓
Objective:			
4.6.1 Expand the economic benefits of the health care sector.			✓
Policies:			
4.6.1.a Encourage expanded services at MMMC and at other medical facilities.			✓
4.6.1.b Support expansion of federally qualified health centers with the direct involvement of the residents of the communities served.			✓
4.6.1.c Support the use of multimedia as a means to provide healthcare information.			✓
4.6.1.d Encourage digitalization of all diagnostic equipment at all facilities on Maui to enable sharing of data and more efficient use of limited provider workforce, consistent with data protection and patient privacy.			✓
4.6.1.e Support the expansion of telemedicine.			✓
4.6.1.f Encourage expansion and improved access to emergency care in all communities.			✓
Objective:			
4.6.2 Be more efficient in the delivery of health care services and in minimizing health care costs.			✓
Policies:			
4.6.2.a Support expansion of health care providers and facilities to improve access to quality care throughout the island.			✓
4.6.2.b Encourage the expansion of veteran health care services.			✓
4.6.2.c Allow home-based out-patient medical care that does not interfere with surrounding neighborhoods.			✓
Objective:			
4.6.3. Expand Maui's alternative health care services, including spiritual practices.			✓
Policies:			
4.6.3.a Support efforts to promote alternative medicine.			✓
4.6.3.b Allow small-scale home-alternative medicine businesses such as massage, chiropractic care, traditional Hawaiian healing, and acupuncture that do not interfere with surrounding neighborhoods.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above goal, objectives, and policies related to the health care sector.**			
EDUCATION AND WORKFORCE DEVELOPMENT			

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Goal:			
4.7 Maui will have effective education and workforce development programs and initiatives that are aligned with economic development goals.		✓	
Objective:			
4.7.1 Improve preschool and K-12 education to allow our youth to develop the skills needed to successfully navigate the 21st century.		✓	
Objective:			
4.7.1.a Encourage the State to implement programs such as:			
(1) Universally available preschool for children between the ages of one and five;			✓
(2) Mandatory kindergarten;			✓
(3) Mandatory K-5th grade classroom size limits of 1 teacher to 20 students;			✓
(4) Mandatory nutrition programs; and			✓
(5) Mandatory Native Hawaiian programs at all grade levels.			✓
4.7.1.b Encourage the DOE to extend the school day by at least an hour.			✓
4.7.1.c Encourage the State to increase funding for public education so that Hawai‘i is among the top 10 states nationally as measured by investment per pupil.		✓	
4.7.1.d Encourage the State to ensure teacher certifications relate to effective delivery and improved student performances, and develop an industry experience/equivalency certification to assure our DOE students have access to career technical education and training.			✓
4.7.1.e Encourage the UHMC to provide dormitory space for high school students.			✓
4.7.1.f Encourage the development and implementation of curriculum on native Hawaiian history, culture, and practices, in consultation with native Hawaiian groups and associations.			✓
Objective:			
4.7.2 Encourage an increase in the number of certificate recipients and associate, bachelors, and graduate degrees conferred.			✓
Policies:			
4.7.2.a Encourage the State to increase the number of articulation agreements between the UHMC and four-year universities, particularly the University of Hawai‘i at Manoa.			✓
4.7.2.b Encourage the State to expand accredited 2-year, 4-year, and graduate programs through the UHMC.			✓
4.7.2.c Encourage the education and training of our residents to meet the needs of a diversified economy.			✓
4.7.2.d Support education and training programs such as student internships, vocational training, and career development opportunities to ensure a highly skilled workforce			✓

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4.7.2.e Work with educational institutions to improve and expand access to education and training through multiple modes, including distance learning.			✓
Objective:			
4.7.3 Strive to ensure that more of Maui's jobs are developed in STEM-related sectors by 2030.			✓
Policies:			
4.7.3.a Support the development of STEM-related certificates and degrees at the two- and four year levels.			✓
4.7.3.b Support the education initiatives of the Maui Agricultural Development Plan.			✓
4.7.3.c Expand and seek funding for internships, mentoring, job shadowing, etc. to foster interest in health and green workforce careers.			✓
4.7.3.d Work with MEDB, UHMC, and other similar organizations to expand internship/education programs to support STEM careers.			✓
4.7.3.e Continue to partner with the MEDB and other similar organizations to recruit, assist, and retain emerging industries, research and development activities, and educational/workforce opportunities.			✓
Analysis: **The Proposed Action supports the goal and above-noted objective and policies relating to educational and workforce development. As the majority of market residential units within the new community are expected to be owned and occupied by part-time residents, the project is not expected to place substantial demands on the State Department of Education (DOE) and its school facilities/programs. Children of families living within the onsite residential workforce units would, however, be served by DOE schools. For each residential unit developed within the project, a school impact fee will be paid to the DOE. The Applicant will coordinate with DOE to determine its fair share for a school impact fee contribution, which would be utilized by DOE to improve educational facilities and programs.**			
CHAPTER 5 – HOUSING			
Goal:			
5.1 Maui will have safe, decent, appropriate, and affordable housing for all residents developed in a way that contributes to strong neighborhoods and a thriving island community.	✓		
Objective:			
5.1.1 More livable communities that provide for a mix of housing types, land uses, income levels, and age.	✓		
Policies:			
5.1.1.a Promote livable communities (compact/walkable/bikeable, access to transit) that provide for a mix of housing types and land uses, including parks, open space, and recreational areas.	✓		
5.1.1.b Promote planning approaches that provide a mix of multifamily and single-family housing units to expand housing choices.	✓		
5.1.1.c Discourage gated communities.			✓
5.1.1.d Provide incentives for the rehabilitation or adaptive reuse of historic structures to facilitate more housing choices.			✓
5.1.1.e Use planning and regulatory approaches to provide higher housing densities.			✓

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Objective:			
5.1.2 Better monitoring, evaluation, and refinement of affordable housing policy in conjunction with the economic cycle.		✓	
Policies:			
5.1.2.a Improve data on resident and nonresident housing.			✓
5.1.2.b Utilize the following approaches to promote resident housing and to minimize offshore market impacts:			
(1) Ensure that the future housing stock is composed of a mix of housing types (multifamily, small lots, ohana units, co-housing, cottage houses, etc.);	✓		
(2) Encourage new housing in proximity to jobs and services, in places that are conducive/affordable to island residents; and	✓		
(3) Explore taxation alternatives and building fee structures.			✓
Objective:			
5.1.3 Provide affordable housing, rental or in fee, to the broad spectrum of our island community.	✓		
Policies:			
5.1.3.a Consider regulations that can help keep affordable housing available at affordable rents.			✓
5.1.3.b Seek to have ownership of affordable for-sale and rental housing vested in a non-profit community land trust, or other qualified housing provider, committed to keeping such housing affordable in perpetuity.	✓		
5.1.3.c Facilitate the use of public lands in urban areas that are suitable for affordable housing.			✓
5.1.3.d Develop or support partnerships and initiatives that provide housing-related education/outreach.			✓
5.1.3.e Support the continuing efforts of the County and its community partners to:			
(1) Disseminate information on different housing/financial assistance programs (loans, grants, etc.) including information on housing rehabilitation/restoration/adaptive reuse;			✓
(2) Provide housing-related counseling including budget, credit, and financial planning assistance; and			✓
(3) Create and maintain a comprehensive/master list of available affordable housing to help residents secure a unit that satisfies their need.			✓
Objective:			
5.1.4 Provide infrastructure in a more timely manner to support the development of affordable housing.		✓	
Policies:			
5.1.4.a Prioritize the development of infrastructure that supports the development of affordable housing.		✓	
5.1.4.b Utilize appropriate financing approaches and assistance tools to encourage the development of infrastructure and public facilities.			✓

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5.1.4.c Tailor infrastructure requirements to correspond with appropriate level-of-service standards to help control housing costs and to maintain safety.			✓
Objective:			
5.1.5 A wider range of affordable housing options and programs for those with special needs.			✓
Policies:			
5.1.5.a Ensure that residents with special needs have access to appropriate housing.			✓
5.1.5.b Encourage housing to be built or rehabilitated to allow the elderly and those with special needs to live in their homes.			✓
5.1.5.c Ensure and facilitate programs to assist those with special needs from becoming homeless.			✓
5.1.5.d Promote programs that stimulate the production of sustainable homeless shelters and alternative housing technologies.			✓
5.1.5.e Support programs that offer home modification counseling on low-interest retrofit loans and grants to those with special needs.			✓
Objective:			
5.1.6 Reduce the cost to developers of providing housing that is affordable to families with household incomes 160 percent and below of annual median income.	✓		
Policies:			
5.1.6.a Support fast-track processing procedures for the following housing-related entitlements: affordable housing projects/units; indigenous Hawaiian housing/units; and special-needs housing units (seniors, disabled, homeless, etc.).			✓
5.1.6.b Require the construction of affordable for-sale and rental housing units as part of the construction of new housing developments.	✓		
5.1.6.c Offer extra incentives in boom periods and withdraw incentives during slack periods.			✓
Objective:			
5.1.7 Increased preservation and promotion of indigenous Hawaiian housing and architecture.			✓
Policies:			
5.1.7.a Preserve, promote, and give priority to Hawaiian housing/architecture forms to preserve Hawaiian culture.			✓
5.1.7.b Provide for indigenous architecture as an allowable structure for native Hawaiian uses to include hula and lāʻau lapaʻau.			✓
Analysis: **The Proposed Action supports the goal and above-noted objectives and policies relating to housing. The proposed master-planned project will be developed in an area of Makena designated for growth by the MIP and concurrent with infrastructure systems to service the project. As part of the project, 109 onsite residential workforce housing units will be developed in an effort to provide opportunities for local families to reside in the Makena region in proximity to employment opportunities. Other than existing gates installed at Makena, there will be no new gates installed within the new community.**			

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CHAPTER 6 – INFRASTRUCTURE AND PUBLIC FACILITES			
SOLID WASTE			
Goal:			
6.1 Maui will have implemented the ISWMP thereby diverting waste from its landfills, extending their capacities.		✓	
Objective:			
6.1.1 Meet our future solid waste needs with a more comprehensive planning and management strategy.			✓
Policies:			
6.1.1.a Update and publicize the ISWMP every ten years.			✓
6.1.1.b Strengthen inter-agency coordination including Planning and Environmental Management departments.			✓
6.1.1.c Divert waste from the landfills and educate the public about the recommendations of the ISWMP.		✓	
6.1.1.d Minimize future active, unlined landfill cells to the extent feasible.			✓
Objective:			
6.1.2 Divert at least 60 percent of solid waste from the island's landfills.		✓	
Policies:			
6.1.2.a Require residents and commercial enterprises that generate waste to pay a fair proportion of disposal costs.		✓	
6.1.2.b Encourage environmentally safe waste-to-energy solutions.			✓
6.1.2.c Facilitate the reduction of solid waste generated by packaging, food service products, construction waste, etc.			✓
6.1.2.d Educate residents and visitors about the impacts of and methods to reduce, reuse, and recycle.		✓	
6.1.2.e Discourage the disposal of landfill leachate by diversion to wastewater treatment plants, where practicable.			✓
Analysis: **The Proposed Action supports the goal and above-noted objective and policies relating to solid waste. Solid waste generated by the proposed residential units will be collected by a private refuse service company and disposed at the Central Maui Landfill. In addition, there will be recycling facilities throughout the residential development with associated educational signage to encourage recycling and to minimize the amount of solid waste going to the landfill.**			
WASTEWATER			
Goal:			
6.2 Maui will have wastewater systems that comply with or exceed State and Federal regulations; meet levels-of-service needs; provide adequate capacity to accommodate projected demand; ensure efficient, effective, and environmentally sensitive operation; and maximize wastewater reuse where feasible.	✓		

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Objective:			
6.2.1 A wastewater planning program capable of efficiently providing timely and adequate capacity to service projected demand where economically feasible and practicable.		✓	
Policies:			
6.2.1.a Encourage the use of renewable energy in support of wastewater treatment facilities.			✓
6.2.1.b Focus the expansion of wastewater systems to accommodate planned growth consistent with the MIP Directed Growth Strategy.			✓
6.2.1.c Establish new wastewater treatment plant(s) outside the tsunami zone.		✓	
Objective:			
6.2.2 Adequate levels of wastewater service with minimal environmental impacts.		✓	
Policies:			
6.2.2.a Meet or exceed all State and Federal standards regulating wastewater disposal or reuse.		✓	
6.2.2.b Encourage tertiary treatment for all municipal wastewater that is disposed through deep injection wells. Phase out all municipal and private injection wells in coordination with water reuse programs, where feasible, by 2020.			✓
6.2.2.c Improve and upgrade the County's existing wastewater collection, treatment, and reuse facilities consistent with current and future plans and the County's CIP.			✓
6.2.2.d Maintain an ongoing sewer inspection program for public and private multi-user systems to identify potential problems and forecast each system's residual life.			✓
6.2.2.e Require all new developments to fund system improvements in proportion to the development impact and in accordance with the County's wastewater functional plan.			✓
6.2.2.f Require appropriate funding mechanisms, such as a sinking fund, to adequately maintain or replace aging water-system components.			✓
6.2.2.g Strongly encourage the phase out of cesspools.			✓
Objective:			
6.2.3 Increase the reuse of wastewater.	✓		
Policies:			
6.2.3.a Strengthen coordination between the Department of Water Supply (DWS) and the WWRD to promote reuse/recycling of wastewater.			✓
6.2.3.b Expand the reuse of wastewater from the Central Maui, Kīhei, Lahaina, and other wastewater systems.	✓		
Analysis: **The Proposed Action supports the goal and above-noted objectives and policies relating to wastewater. The Proposed Action will be serviced by the existing privately-owned and maintained Makena Wastewater Reclamation Facility (WWRF), which has adequate capacity to serve the projected demand to be generated by the project. The new community will utilize**			

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reclaimed water from the Makena WWRF for irrigation of landscaping in order to offset overall potable (drinking) water use for the project. All wastewater infrastructure required for the project will be installed and paid for by the Applicant.				
WATER				
Goal:				
6.3	Maui will have an environmentally sustainable, reliable, safe, and efficient water system.	✓		
Objective:				
6.3.1	More comprehensive approach to water resources planning to effectively protect, recharge, and manage water resources including watersheds, groundwater, streams, and aquifers.			✓
Policies:				
6.3.1.a	Ensure that DWS actions reflect its public trust responsibilities toward water.			✓
6.3.1.b	Ensure the WUDP implements the State Water Code and MIP's goals, objectives, and policies.			✓
6.3.1.c	Regularly update the WUDP, to maintain compliance with the General Plan.			✓
6.3.1.d	Ensure that the County's CIP for water-source development is consistent with the WUDP and the MIP.			✓
6.3.1.e	Where desirable, retain and expand public ownership and management of watersheds and fresh-water systems.			✓
6.3.1.f	Encourage and improve data exchange and coordination among Federal, State, County, and private land use planning and water resource management agencies.			✓
Objective:				
6.3.2	Increase the efficiency and capacity of the water systems in striving to meet the needs and balance the island's water needs.	✓		
Policies:				
6.3.2.a	Ensure the efficiency of all water system elements including well and stream intakes, water catchment, transmission lines, reservoirs, and all other system infrastructure.		✓	
6.3.2.b	Encourage increased education about and use of private catchment systems where practicable for nonpotable uses.			✓
6.3.2.c	Maximize the efficient use of reclaimed wastewater to serve nonpotable needs.		✓	
6.3.2.d	Work with appropriate State and County agencies to achieve a balance in resolving the needs of water users in keeping with the water allocation priorities of the MIP.			✓
6.3.2.e	Ensure water conservation through education, incentives, and regulations.			✓
6.3.2.f	Acquire and develop additional sources of potable water.	✓		
Objective:				

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6.3 Improve water quality and the monitoring of public and private water systems.	✓		
Policy:			
6.3.3.a Protect and maintain water delivery systems.	✓		
Analysis: **The Proposed Action supports the goal and above-noted objectives and policies relating to water. As discussed in Chapter II of the EIS document and according to the Preliminary Engineering Report, new water sources in the form of groundwater wells will be developed to serve the entirety of the Proposed Action, with the exception of its workforce housing component, which will be connected to the Central Maui water system. The new community will also use reclaimed water for irrigation of landscaping in order to offset overall potable (drinking) water use for the project. All water infrastructure required for the project will be installed and paid for by the Applicant.**			
TRANSPORTATION			
Goal:			
6.4 An interconnected, efficient, and well-maintained, multimodal transportation system.	✓		
Objective:			
6.4.1 Provide for a more integrated island-wide transportation and land use planning program that reduces congestion and promotes more efficient (transit-friendly) land use patterns.	✓		
Policies:			
6.4.1.a Plan for an integrated multi-modal transportation system comprised of public transit, bicycle, pedestrian, automobile, and other transportation modes.	✓		
6.4.1.b Refocus transportation investment from the construction of additional roadways only for the automobile to the expansion of a multimodal transportation system.		✓	
6.4.1.c Encourage the use of “complete streets” design methods.	✓		
6.4.1.d Encourage employers to implement TDM strategies.	✓		
Objective:			
6.4.2 Safe, interconnected transit, roadway, bicycle, equestrian, and pedestrian network.	✓		
Policies:			
6.4.2.a Ensure transit-, roadway-, and pedestrian-facilities design and level-of-service standards respect the unique character of our communities.	✓		
6.4.2.b Prioritize transportation improvements list to cost-effectively meet existing and future needs consistent with the MIP.			✓
6.4.2.c Require new development, where appropriate, to integrate sidewalks, pathways, bikeways, and transit infrastructure into new commercial and residential projects while enhancing community character.	✓		
6.4.2.d Identify and improve hazardous and substandard sections of roadways, drainage infrastructure, and bridges, provided that the historical integrity of the roads and bridges are protected.			✓

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6.4.2.e Consider identification, acquisition where appropriate, and utilization of abandoned right of-ways for bikeways, pedestrian pathways, and open-space networks.			✓
6.4.2.f Support the implementation of the *Central Maui Pedestrian & Bicycle Master Plan* (March 2012), when consistent with the MIP.			✓
Objective:			
6.4.3 An island-wide, multimodal transportation system that respects and enhances the natural environment, scenic views, and each community's character.		✓	
Policies:			
6.4.3.a Ensure that the roadway and transit alignments respect the natural environment and scenic views.		✓	
6.4.3.b Ensure that roadways and transit systems in rural areas and small towns enhance community character.		✓	
6.4.3.c Design all transit systems to respect visual corridors and Maui's character.			✓
Analysis: **The Proposed Action supports the goal, objectives, and above-noted policies relating to transportation. A place-appropriate interior roadway network inspired by smart-growth and complete streets design will be engineered and installed as part of the new community. In addition, pedestrian, bicycle, and golf cart paths will be developed for the residents' use in an effort to reduce vehicular traffic for localized trips. The network of pathways will be integrated with existing pathways throughout Makena Resort. The Applicant will also be contributing its fair share for regional roadway improvements pursuant to conditions of its existing entitlement approvals.**			
TRANSIT			
Goal:			
6.5 An island-wide transit system that addresses the needs of residents and visitors and contributes to healthy and livable communities.			✓
Objective:			
6.5.1 An integrated transit system that better serves all mobility needs of Maui's residents and visitors.			✓
Policies:			
6.5.1.a Maximize access to public transit in town centers, commercial districts, and employment centers.			✓
6.5.1.b Expand regional and inter-regional transit services, where appropriate, in heavily traveled corridors and within communities			✓
6.5.1.c Increase the frequency of current service, add additional bus routes as demand requires, and transition to nonpolluting transit vehicles, as funding permits.			✓
6.5.1.d Provide adequate transit infrastructure (e.g., bus pullouts, waiting benches and shelters, signs) along existing and future transit right-of-ways.			✓
6.5.1.e Require new development where appropriate, to provide right-of-ways (ROWs) to accommodate transit circulation and support facilities.			✓
6.5.1.f Identify, protect, and preserve, or acquire corridors for future inter-community transit use, including but not limited to, rail and also multimodal use corridors.			✓
6.5.1.g Establish transit corridors by planning for and securing right-of-way when			✓

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	appropriate for alternative modes of transportation (such as rail and water ferry service).			
6.5.1.h	Pursue improvements and upgrades to the existing transit system consistent with updated MDOT planning studies/transit plans (within the framework of comprehensive island-wide multimodal transportation plans).			✓
6.5.1.i	Increase inter-agency coordination between the Department of Planning, State Department of Transportation, County Department of Public Works, and other applicable agencies.			✓
Objective:				
6.5.2	Plan for a more diversified and stable funding base to support transportation goals.			✓
Policies:				
6.5.2.a	Support alternative methods and sources of funding transportation improvements (including impact fees, higher taxes, fare adjustments, dedicated sources of funding, and assessments).			✓
6.5.2.b	Collaborate with public-private entities or nonprofit organizations to reduce public transit operational expenses.			✓
6.5.2.c	Coordinate with appropriate Federal, State, and County agencies to fund transportation projects in areas where growth is anticipated.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above goal, objectives, and policies related to transit.**				
PARKS				
Goal:				
6.6	Maui will have a diverse range of active and passive recreational parks, wilderness areas, and other natural-resource areas linked, where feasible, by a network of greenways, bikeways, pathways, and roads that are accessible to all.	✓		
Objective:				
6.6.1	More effective, long-range planning of parks and recreation programs able to meet community needs.		✓	
Policies:				
6.6.1.a	Support, consistent with the MIP, the implementation of open-space and recreational plans, such as the *Pali to Puamana Parkway* Master Plan and the *Upcountry Greenways Master Plan*.			✓
6.6.1.b	Utilize the ahupua‘a approach by integrating mauka-to-makai natural landscapes into an island-wide parks and recreation functional plan.			✓
6.6.1.c	Provide a balanced mix of passive and active parks, including neighborhood, community, and regional parks, in each community plan area.	✓		
6.6.1.d	Support the expansion of Haleakala National Park, where supported by affected communities.			✓
6.6.1.e	Support lo‘i and dryland taro restoration in County, State, and Federal parks.			✓
6.6.1.f	Encourage private landowners to dedicate land to Federal, State, or County governments, or nonprofit land trusts, for parks and open-space protection		✓	

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	consistent with the MIP.			
6.6.1.g	Strengthen inter-agency coordination including State and County departments, such as resolving joint use of facilities and properties.			✓
6.6.1.h	Work with the State to prepare and implement a master management plan for ʻĀhihi-Kīnaʻu and La Perouse-Keoneʻōʻio Bay to Kanaloa Point region.			✓
Objective:				
6.6.2	Achieve parks and recreation opportunities to meet the diverse needs of our community.	✓		
Policies:				
6.6.2.a	Establish appropriate level-of-service standards at the neighborhood, community, and regional levels.			✓
6.6.2.b	Identify and acquire parks and recreational facilities that address existing park inadequacies and complement and enhance neighborhoods, communities, and natural land features.		✓	
6.6.2.c	Design park facilities to preserve and enhance natural site characteristics, maximize views, protect environmental and cultural sites, and minimize water demands.		✓	
6.6.2.d	Acquire lands along the shoreline, between coastal roadways and the ocean.			✓
6.6.2.e	Encourage the development of regional parks, district parks, and greenways in a manner that helps to contain sprawl, provide separation between distinct communities, or offer open space within urban communities.			✓
6.6.2.f	Require large master-planned communities that incorporate a mixture of park facilities pursuant to parks standards and functional plans.	✓		
6.6.2.g	Support appropriate areas for cultural parks (e.g., Kepaniwai) in each community plan area.			✓
6.6.2.h	Incorporate community input to determine the appropriate location, design, and long-term stewardship of parks and recreation facilities.		✓	
6.6.2.i	Manage commercial activities at public parks to minimize impacts to residents.			✓
6.6.2.j	Support public-private partnerships to implement the acquisition and development of parks when consistent with the General Plan.		✓	
6.6.2.k	Support a coordinated program to improve, operate, and maintain joint-use facilities and grounds.			✓
Objective:				
6.6.3	An expanded network of greenways, trails, pathways, and bikeways.	✓		
Policies:				
6.6.3.a	Link existing and future park sites, natural areas, the shoreline, and residential areas with a network of bikeways, pedestrian paths, trails, and greenways.	✓		
6.6.3.b	Support the implementation of plans and programs that facilitate pedestrian mobility and access to active and passive recreation areas and sites.	✓		
6.6.3.c	Collaborate with the State and private land owners to ensure perpetual access and proper stewardship of traditional trails and access systems.	✓		

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6.6.3.d Facilitate the development of well-managed noncommercial campgrounds throughout the island.			✓
6.6.3.e Consider requiring commercial bike rental businesses to provide funding that supports a mauka-to-makai Haleakalā bikeway improvement program.			✓
6.6.3.f Ensure ADA compliance and seek opportunities to make all parks and recreational facilities accessible to people with disabilities.			✓
Analysis: **The Proposed Action supports the goal, objectives, and above-noted policies relating to parks. The Proposed Action involves the ongoing maintenance of Makena Landing and Maluaka beach parks in Makena, and the integration of bicycle and pedestrian pathways, hiking trails, and golf cart pathways that will connect with existing pathways in Makena. The Proposed Action will also include the development of a community gathering place to foster social and cultural interaction. In addition, beach access parking improvements will be installed for greater public access to shoreline resources in Makena, and better overall connectivity between the mountain and the ocean.**			
PUBLIC FACILITIES			
Goal:			
6.7 Maui will have adequate public facilities that meet the diverse needs of residents.		✓	
Objective:			
6.7.1 More effective planning for public facilities to meet community needs.		✓	
Policies:			
6.7.1.a Ensure the development and update of island-wide public facilities functional plans that incorporate prioritized facilities, programs, and a financial component.			✓
6.7.1.b Establish appropriate level-of-service standards for public facilities provided by the County.			✓
6.7.1.c Pursue improvements and upgrades of County public facilities consistent with the public facilities functional plan.			✓
6.7.1.d Recognize Wailuku Town as Maui's Civic Center and support the revitalization of the Civic Center District by consolidating government office spaces, enhancing landscape beautification, and providing adequate public parking.			✓
6.7.1.e Support, with community input, the relocation of the Maui Community Correctional Center from Wailuku to an appropriate location in Pu'unēnē.			✓
6.7.1.f Adequately plan and fund public safety facilities (fire, police, ambulance, civil defense) to meet community needs.		✓	
6.7.1.g Increase joint facilities utilization and program coordination between State and County agencies such as baseyards, communication centers, recreational facilities, etc., where feasible.			✓
6.7.1.h Focus future expenditures for additional government office space, parking, and related facilities in Wailuku's Civic Center District.			✓
6.7.1.i Encourage continuous and safe walkways for children within one mile of each school.			✓

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6.7.1.j Encourage public-private partnerships to identify and resolve public facility plan shortcomings when consistent with the General Plan.			✓
6.7.1.k Incorporate community/area residents' input to determine the appropriate location and design of public facilities.			✓
Analysis: **The Proposed Action is applicable to the above goal, objective, and policy related to public facilities. The Proposed Action will contribute toward police and fire protection services through real property tax revenues generated by the project.**			
SCHOOLS AND LIBRARIES			
Goal:			
6.8 Maui will have school and library facilities that meet residents' needs and goals.		✓	
Objective:			
6.8.1 Assist in providing appropriate school and library facilities in a timely manner and in strategic locations.		✓	
Policies:			
6.8.1.a Work in partnership with all educational institutions to meet current and future needs including appropriate location, timing, and design of future facilities.			✓
6.8.1.b Allow for the expansion and intensification of uses at the UHMC including satellite campuses operating in remote areas.			✓
6.8.1.c Encourage the DOE to build and maintain smaller, community-oriented schools.			✓
6.8.1.d Encourage better cooperation by the State and County for use of State and County facilities.			✓
6.8.1.e Encourage the State to upgrade, modernize, and expand school facilities, including those in remote communities.		✓	
6.8.1.f Work with the State to develop a master plan for the expansion of UHMC in accordance with the MIP.			✓
6.8.1.g Support partnerships (public/private/nonprofit) to build and staff new schools and improve existing facilities.			✓
6.8.1.h Work with the BOE HSPLS to provide centralized library services (including telecommunications) to all areas of Maui.			✓
6.8.1.i Work with the State to expedite planning and construction of Kīhei High School, including the integration of the high school with the Maui Research and Technology Park.			✓
6.8.1.j Work with the State to identify intermediate school sites in Central Maui and other areas where needed.			✓
Objective:			
6.8.2 Provide a more expansive network of safe and convenient pedestrian-friendly streets, trails, pathways, and bikeways between neighborhoods and schools where appropriate.			✓
Policies:			
6.8.2.a Encourage the State to build new school facilities in appropriate locations that minimize time and distance for students to travel to and from school.			✓

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6.8.2.b Encourage the State to implement the Safe Routes to School initiative with funding commitments to help the County plan and fund projects that ensure safe access routes to school.			✓
Analysis: **The Proposed Action supports the goal and above-noted objective and policy relating to schools and libraries. As the majority of market residential units within the new community are expected to be owned and occupied by part-time residents, the project is not expected to place a substantial demand on the DOE and its school facilities/programs. Children of families living within the 109 onsite workforce units would, however, be served by DOE schools. For each residential unit developed within the project, a school impact fee will be paid to the DOE. The Applicant will coordinate with DOE to determine its fair share for a school impact fee contribution, which would be utilized by DOE to improve educational facilities and programs.**			
HEALTH CARE			
Goal:			
6.9 All of Maui residents will have the best possible health care to include healthy living, disease prevention, as well as acute and long-term care.			✓
Objective:			
6.9.1 Greater autonomy to the Maui region in their efforts to improve medical care on the island.			✓
Policies:			
6.9.1.a Encourage the State to give greater autonomy to the Maui region in their efforts to improve medical care on the island.			✓
6.9.1.b Support innovative financial solutions, such as capital partnerships, joint ventures, and consolidations for MMMC and other health institutions.			✓
6.9.1.c Support MMMC as a major core medical center that provides a greater range of services.			✓
6.9.1.d Support the immediate development of a critical access hospital in West Maui.			✓
6.9.1.e Support the expansion of regional critical-access facilities, where allowed by Federal regulations.			✓
6.9.1.f Improve medical service to remote and outlying regions.			✓
6.9.1.g Support transportation services for dialysis patients and community dialysis programs.			✓
6.9.1.h Work with the State to determine the feasibility of appropriate medical facilities in South Maui and Hāna, including the possible reestablishment of a small community hospital in Hāna, the establishment of a hospital in South Maui, and assist the State in securing funding to meet Maui's health care needs.			✓
Objective:			
6.9.2 An expansion of long-term care facilities and long-term care alternatives to meet the needs of our aging population.			✓
Policies:			
6.9.2.a Support efforts to increase Maui's long-term care bed capacity to cover current and future needs, close to large population centers.			✓

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6.9.2.b Recognize that facilities for low-income elders who need long-term care are a needed form of affordable and subsidized housing.			✓
6.9.2.c Evaluate the needs of the long-term disabled and provide planning support for their care, if there is a need for long-term care facilities.			✓
6.9.2.d Consider long-term care facilities as a major potential employment base and encourage the recruitment and training of potential employees.			✓
Objective:			
6.9.3 More support to home-care and community-based programs so they become alternatives to traditional nursing homes.			✓
Policies:			
6.9.3.a Support the establishment of a program to assist the elderly and people with disabilities to remain in their homes or in a home-like setting.			✓
6.9.3.b Support the establishment of senior and adult-day-care centers and senior housing.			✓
6.9.3.c Continue to support existing senior centers (e.g. Kaunoa), and establish new senior centers that will provide day-care sites and programs for the disabled and elderly.			✓
6.9.3.d Support funding alternatives for community-based services that assist home-care efforts.			✓
6.9.3.e Encourage the State to adopt the recommendations contained within the Legislative Reference Bureau's report entitled "Gimme a Break: Respite Care Services in Other States," (December 2007) where appropriate, feasible, and consistent with the MIP.			✓
Objective:			
6.9.4 Improved preventative medicine and primary health care.			✓
Policies:			
6.9.4.a Develop and utilize health-status benchmarks to measure prevention and primary health care service delivery.			✓
6.9.4.b Support programs that provide family planning assistance.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above goal, objectives, and policies related to health care.**			
ENERGY			
Goal:			
6.10 Maui will meet its energy needs through local sources of clean, renewable energy, and through conservation.	✓		
Objective:			
6.10.1 Reduce fossil fuel consumption. Using the 2005 electricity consumption as a baseline, reduce by 15 percent in 2015; 20 percent by 2020; and 30 percent by 2030.		✓	
Policies:			

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6.10.1.a Support energy efficient systems, processes, and methods in public and private operations, buildings, and facilities.		✓	
6.10.1.b Support the Maui Solar Rooftop initiative.		✓	
6.10.1.c Support Hawai`i Energy and other Public Utility Commission (PUC) approved energy efficiency programs.		✓	
Objective:			
6.10.2 Increase the minimum percentage of electricity obtained from clean, renewable energy sources. By 2015, more than 15 percent of Maui's electricity will be produced from locally-produced, clean, renewable energy sources, 25 percent by 2020, and 40 percent by 2030.		✓	
Policies:			
6.10.2.a Evaluate available renewable energy resource sites and applicable technologies.			✓
6.10.2.b Encourage the installation of renewable energy systems, where appropriate.	✓		
6.10.2.c Support the establishment of new renewable energy facilities at appropriate locations provided that environmental, view plane, and cultural impacts are addressed.			✓
6.10.2.d Encourage all new County facilities completed after January 1, 2015, to produce at least 15 percent of their projected electricity needs with onsite renewable energy.			✓
Objective:			
6.10.3 Increased use of clean, renewable energy.			✓
Policies:			
6.10.3.a Support efforts in the PUC to upgrade Maui's power grid to integrate renewable energy from multiple sources and wheeling of electricity.		✓	
6.10.3.b Encourage the PUC to work with the County to implement and expedite community supported renewable energy projects.			✓
6.10.3.c Encourage efforts to produce more renewable energy using distributed generation.	✓		
6.10.3.d Encourage import substitution by MECO and the broader community to become more self-sufficient in energy production.		✓	
6.10.3.e Educate the public on the economic and environmental benefits from the increased use of renewable energy.			✓
6.10.3.f Encourage support from the Federal government, State, and the private sector for Maui's renewable energy objectives.		✓	
6.10.3.g Encourage incentives to support the development and use of renewable energy.			✓
Objective:			
6.10.4 More efficient distribution of power throughout the island while preserving island beauty.		✓	

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Analysis: **The Proposed Action supports the goal and above-noted objective and policies relating to renewable and green technologies. A Sustainability Report has been prepared for the Proposed Action, which sets forth both guiding sustainability principles and a program of sustainability measures intended to reduce the environmental footprint of the new community. This program includes Leadership in Energy and Design (LEED) certification of buildings 500 square feet or larger, the installation of rooftop photovoltaic (PV) panels, and the use of energy efficiency/conservation technologies.**			
HARBORS AND AIRPORT			
Goal:			
6.11 Maui will have harbors and airports that will efficiently, dependably, and safely facilitate the movement of passengers and cargo.			✓
Objective:			
6.11.1 Upgraded harbor facilities to handle larger volumes of freight and passengers and additional small boat harbors.			✓
Policies:			
6.11.1.a Support the expansion and upgrade of Kahului Harbor through the following, provided that any expansion is respectful of cultural practices and existing recreational uses and supports improved water quality:			
(1) Accommodate increasing volumes of cargo;			✓
(2) Provide deeper pier depths and greater fuel-receiving and storing capacities; and			✓
(3) Ensure safe and efficient work areas, including separating passenger operations from fuel and cargo operations.			✓
6.11.1.b Work with public and private entities to provide adequate pier slips, utilities, repair facilities, and waste-disposal capabilities.			✓
6.11.1.c Encourage the State to safely separate passenger (cruise and ferry) operations from hazardous bulk fuels and heavy cargo transporting operations, while not decreasing harbor's capacity to safely support various recreational uses.			✓
6.11.1.d Encourage the State to develop cargo inspecting sites and facilities for efficient cargo and container processing and transportation and to prevent alien species entry.			✓
6.11.1.e Support a State and County task force to study the feasibility of a second commercial harbor on Maui.			✓
Objective:			
6.11.2 Establish more economically thriving and environmentally sensitive small boat harbors accommodating resident and business activity, including fishing, recreation, and tour boats.			✓
Policy:			
6.11.2.a Provide for needed shore-side facilities and capabilities to support small boat harbor users (e.g. repair facilities, parking, cold storage, and mass-transit connections).			✓
Objective:			

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6.11.3 Upgraded airport facilities and navigation aids to serve the needs of passengers, freight movements, and general aviation.			✓
Policies:			
6.11.3.a Protect the island's airports from encroaching urbanization that may negatively impact the airport operations.			✓
6.11.3.b Support State efforts to improve Kahului Airport operations to better serve passenger and cargo needs.			✓
6.11.3.c Support State efforts to identify sites and plan to relocate and accommodate small and rotary wing aircraft.			✓
6.11.3.d Encourage the State to improve airport safety including lighting, fuel transmission, fuel safety, etc.			✓
6.11.3.e Consider expansion of rental car facilities in West and South Maui.			✓
6.11.3.f Consider expansion of mass transit (bus, fixed-rail, shuttle, and taxis, bicycle, and pedestrian facilities) to and from Kahului Airport and not limited to passenger movements (allowing for luggage and cargo).			✓
6.11.3.g Encourage the State to maintain airport capacity and to encourage more responsive air services to Hāna and Kapalua.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above goal, objectives, and policies related to harbors and airports.**			
CHAPTER 7 – LAND USE			
AGRICULTURAL LANDS			
Goal:			
7.1 Maui will have a prosperous agricultural industry and will protect agricultural lands.		✓	
Objective:			
7.1.1 Significantly reduce the loss of productive agricultural lands.		✓	
Policies:			
7.1.1.a Allow, where appropriate, the clustering of development on agricultural lands when approved as a CSD plan or similar approval mechanism.			✓
7.1.1.b Require, where appropriate, the review and approval of CSD plans prior to the subdivision of agricultural land.			✓
7.1.1.c Discourage developing or subdividing productive agricultural lands for residential uses in which the residence would be the primary use and any agricultural activities would be secondary uses.			✓
7.1.1.d Consider requirements for public notification and review of the subdivision of agricultural land into four or more lots.			✓
7.1.1.e Focus urban growth, to the extent practicable, away from productive and important agricultural lands.			✓

Maui Island Plan Goals, Objectives and Policies Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable	DA	IA	NA
7.1.1.f Strongly discourage the conversion of productive and important agricultural lands (such as sugar, pineapple, and other produce lands) to rural or urban use, unless justified during the General Plan update, or when other overriding factors are present.		✓	
7.1.1.g Further develop the requirements for agricultural assessments found under Section 19.510, MCC.			✓
7.1.1.h Provide incentives for landowners to preserve and protect agricultural lands from development through the use of TDR/PDR, tax credits, easement programs, or similar means.			✓
7.1.1.i Promote the use of U.S.D.A. Farm and Ranch Lands Protection Program grants to fund the acquisition of conservation easements on eligible agricultural lands.			✓
7.1.1.j Require all major developments adjacent to agricultural lands to provide an appropriate and site-specific agricultural protection buffer as part of a required site plan.		✓	
7.1.1.k Support and promote the viability of Maui's agricultural businesses through property tax incentives and other programs and subsidies.			✓
7.1.1.l Encourage future community plan efforts to identify lands within the County Agricultural zoning district that are primarily being used for large-lot residential or rural use and consider such lands for reclassification to an appropriate County Rural zone.			✓
Objective:			
7.1.2 Reduction of the island's dependence on off-island agricultural products and expansion of export capacity.			✓
Policies:			
7.1.2.a Coordinate with the agricultural community, associations/community groups, agricultural landowners, and the State to designate IALs.			✓
7.1.2.b Support an incentive package for productive Agricultural Lands which aims to ensure agricultural viability for small- and commercial-scale agricultural producers.			✓
7.1.2.c Actively look to acquire land and provide infrastructure to expand the agricultural park and establish new agricultural parks.			✓
7.1.2.d Support the designation of a research and development area within agricultural parks to help farmers stay attuned to new technology and research.			✓
7.1.2.e Support local cooperative extension services to facilitate timely technology transfer opportunities.			✓
7.1.2.f Support plans and programs to develop additional sources of water for irrigation purposes.			✓
7.1.2.g Consider appropriate subdivision requirements (gravel roads, above-ground utilities, etc.) in those subdivisions creating Agricultural Parks where lots are limited to agricultural production with no dwellings.			✓
7.1.2.h Support the recommendations, policies, and actions contained within the Maui Agricultural Development Plan, July 2009, when consistent with the MIP.			✓

Maui Island Plan Goals, Objectives and Policies Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable	DA	IA	NA
7.1.2.i Allow water and tax discounts for legitimate farming operations on rural and agricultural land.			✓
7.1.2.j Give priority in delivery and use of agricultural water and agricultural land within County agricultural parks to cultivation of food crops for local consumption.			✓
7.1.2.k Support programs that control pests and diseases that affect agriculture.			✓
7.1.2.l Support the development of training and apprenticeship programs to encourage an adequate supply of agricultural workers.			✓
Objective:			
7.1.3 Support and facilitate connectivity between communities.		✓	
Policies:			
7.1.3.a Evaluate the impact of gated communities on interconnectivity.			✓
7.1.3.b Discourage land use and urban design that impedes interconnectivity between adjacent communities.		✓	
Analysis: **The Proposed Action supports the goal and above-noted objective and policies relating to agriculture. The Proposed Action involves a request to re-designate a portion of the master plan area (around the top of the existing North Golf Course) from the Agriculture to Rural district to allow for land use consistency with Community Plan designations. These lands fall within the Urban Growth Boundary (UGB) for Makena as set forth by the MIP and, as such, have been designated as an appropriate area for future growth in the community. The project will be designed to provide place-appropriate connectivity between communities while also providing adequate buffers from neighboring agricultural lands. In addition, the proposed land plan incorporates the Nāulu Farm, a non-commercial 2-acre farm operated by the Applicant's ʻŌiwi Resources Stewardship Department. Operations include an animal farm, a greenhouse dedicated to cultivating native species, a vegetable and fruit garden, and an aquaponics system. The greenhouse propagates native species for replanting areas in the project site. The farm's operations are subsidized by a portion of the homeowners' association fees.**			
RURAL AREAS			
Goal:			
7.2 Maui will have a rural landscape and lifestyle where natural systems, cultural resources and farm lands are protected and development enhances and compliments the viability and character of rural communities.	✓		
Objective:			
7.2.1 Reduce the proliferation and impact of residential development outside of urban, small town, and rural growth boundaries.	✓		
Policies:			
7.2.1.a Focus development to areas inside urban, small town, and rural growth boundaries to preserve natural, cultural, and agricultural resources.	✓		
7.2.1.b Encourage cluster development with a mandatory buffer requirement/clear edge at the interface of country towns, agricultural uses, and surrounding rural landscapes.			✓
7.2.1.c Encourage or require, where appropriate, CSDs and the use of green spaces/natural separations to protect the character of rural landscapes.			✓

Maui Island Plan Goals, Objectives and Policies Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable	DA	IA	NA
7.2.1.d Encourage basic goods/services in business country towns.			✓
7.2.1.e Allow for mixed uses, including residential uses, within Business Country Town Districts.			✓
7.2.1.f Encourage the use of alternative stormwater management techniques that minimize land disturbance and preserve natural drainage features.	✓		
7.2.1.g Encourage green belts, open space buffers, and riparian zones to minimize conflicts between agriculture and residential uses.		✓	
7.2.1.h Evaluate the impact of gated communities on inter-connectivity.			✓
Objective:			
7.2.2 More appropriate service/infrastructure standards to enhance and protect the island's rural character and natural systems.	✓		
Policies:			
7.2.2.a Minimize impermeable surfaces within rural areas.		✓	
7.2.2.b Protect and support the character, economic viability, and historic integrity of Maui's small towns.			✓
7.2.2.c Use infrastructure, public service, and design standards that are appropriate to rural areas.	✓		
7.2.2.d Discourage land use and urban design that impede interconnectivity between adjacent communities.		✓	
Analysis: **The Proposed Action supports the goal and above-noted objectives and policies relating to rural areas. The Proposed Action will involve the development of a low-density master-planned residential community in Makena Resort, in an area suited for this type of development, amid similar communities. The proposed residential development will focus development to areas within the UGB as designated by the MIP.**			
URBAN AREAS			
Goal:			
7.3 Maui will have livable human-scale urban communities, an efficient and sustainable land use pattern, and sufficient housing and services for Maui residents.	✓		
Objective:			
7.3.1 Facilitate and support a more compact, efficient, human-scale urban development pattern.	✓		
Policies:			
7. 3.1.a Ensure higher-density compact urban communities, infill, and redevelopment of underutilized urban lots within Urban Growth Boundaries.	✓		
7.3.1.b Maintain a distinct separation between communities, such as but not limited to, Wailuku and Waikapū; Wailuku and Waiheʻe; Pukalani and Makawao; Pukalani and Kula; Makawao and Hāliʻimaile; Lahaina and Kāʻanapali; Kīhei and Māʻalaea; and Māʻalaea and Waikapū, to protect the character and identity of Maui's communities.	✓		

Maui Island Plan Goals, Objectives and Policies Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable	DA	IA	NA
7.3.1.c Strengthen evaluation requirements for new urban expansion, new towns, and major urban infill projects within urban growth areas. Tailor submittal requirements to reflect the impact or scale of different projects.			✓
7.3.1.d Ensure future amendments to urban growth boundaries achieve the following: (1) provide a beneficial extension of the existing community; (2) are in areas where it is cost-effective to provide and operate infrastructure/public service facilities; and (3) do not promote automobile-oriented land use patterns.			✓
7.3.1.e Evaluate the impact of gated communities on inter-connectivity.			✓
7.3.1.f Encourage the development and implementation of neighborhood design standards that are environmentally friendly, such as LEED for Neighborhood Development (LEED – ND) standards.		✓	
7.3.1.g Discourage future pyramid zoning within the industrial zoning districts, while allowing accessory commercial uses and grandfathering existing uses.			✓
7.3.1.h Promote agriculture by encouraging community gardening, community-supported agricultural programs, and farmers markets within and adjacent to urban areas.	✓		
7.3.1.i Discourage land use and urban design that impedes inter-connectivity between adjacent communities.			✓
Objective:			
7.3.2 Facilitate more self-sufficient and sustainable communities.	✓		
Policies:			
7.3.2.a When developing new communities, provide sufficient lands for commercial, appropriate industrial, educational, spiritual, and non-profit uses to serve the daily needs of community residents.			✓
7.3.2.b Site community facilities such as schools, parks, libraries, and community centers within walking and biking distance of residences.			✓
7.3.2.c Facilitate self-sufficient communities and shorten commutes by:			
(1) Directing residential development to job-rich areas;	✓		
(2) Allowing for appropriate commercial development and community services to shorten commutes; and			✓
(3) Allowing home occupations or home-based businesses that are compatible with surrounding neighborhoods and lifestyles.			✓
7.3.2.d Ensure, where appropriate, that affordable employee housing and multi-modal transportation opportunities are located near major employment centers.	✓		
7.3.2.e Discourage the establishment of bedroom communities where long commutes are required to employment centers.			✓
7.3.2.f Facilitate the development of housing by focusing projects in locations where land and infrastructure costs facilitate the development of affordably-priced housing.	✓		
7.3.2.g Provide incentives to facilitate the development of multifamily housing.			✓

Maui Island Plan Goals, Objectives and Policies Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable	DA	IA	NA
7.3.2.h Encourage the placement of rental housing projects in the same areas as for-sale housing to facilitate mixed-income communities.	✓		
7.3.2.i Develop communities that provide sufficient parks, schools, libraries, and other essential public facilities and services to serve resident needs.			✓
7.3.2.j Promote agriculture by encouraging community gardening, edible landscaping, community-supported agricultural programs, and farmers markets within and adjacent to urban areas.	✓		
Objective:			
7.3.3 Strengthen the island's sense of place.	✓		
Policies:			
7.3.3.a Protect and enhance the unique architectural and landscape characteristics of each community.	✓		
7.3.3.b Encourage Hawaiian architecture and tropical building designs.		✓	
7.3.3.c Support the continued revitalization of historic country towns, Wailuku Town, and Kahului's commercial core and harbor-front without displacing traditional, cultural, recreational and customary uses.			✓
7.3.3.d Strongly encourage the preservation of buildings, structures, and sites of historic significance.		✓	
7.3.3.e Require community input through Design Workshops for major new urban expansion, new towns, and major urban infill projects.		✓	
7.3.3.f Require design enhancement, landscaping, and integration of park and rides, bicycle parking areas, and mass-transit infrastructure to mitigate the effect of parking lots and structured parking on the urban landscape.			✓
7.3.3.g Ensure that safe and attractive public spaces (e.g., plazas, parks, town/village squares) are provided throughout the island's urban areas.			✓
Objective:			
7.3.4 Strengthen planning and management for the visitor industry to protect resident quality of life and enhance the visitor experience.	✓		
Policies:			
7.3.4.a Discourage the conversion of hotel units to timeshares and fractional ownership.			✓
7.3.4.b Monitor and manage the amount of, and impacts from, timeshares and fractional ownership.			✓
7.3.4.c Manage short-term rentals and bed-and-breakfast homes through a permitting and regulatory process in accordance with adopted ordinances and community plan policies.			✓
7.3.4.d Limit large-scale resort development to the four existing resort destination areas of Wailea, Makena, Kapalua and Kāʻanapali. "Large Scale Resort" is defined as complexes that include multiple accommodation facilities, activity businesses, retail complexes, and other amenities.	✓		
Objective:			
7.3.5 Ensure that Maui's planning and development review process becomes more transparent, efficient, and innovative.			✓

Maui Island Plan Goals, Objectives and Policies Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable	DA	IA	NA
Policies:			
7.3.5.a Encourage greater community involvement in land use planning and decision making.	✓		
7.3.5.b Establish a predictable and timely development review process that facilitates the approval of projects that meet planning and regulatory requirements.			✓
7.3.5.c Increase inter-agency coordination between the Department of Planning and all State and County agencies responsible for infrastructure and public facilities provision, particularly as it relates to the mitigation of long-term cumulative impacts resulting from development projects.			✓
7.3.5.d Provide greater certainty and transparency in the development review process.			✓
7.3.5.e Expand and maintain land use and geographic information system databases for improved decisions, and make data and products available to the public.			✓
Analysis: **The Proposed Action supports the goal and above-noted objectives and policies relating to urban areas. The Proposed Action involves the development of a low-density master-planned residential community in a destination resort area suited for this type of development, amid similar communities, employment centers, in an area designated for growth, and concurrent with infrastructure systems to service the project. The Proposed Action also involves the development of affordable housing in proximity to job opportunities. The project also strives to encourage community involvement in land use planning and decision making in Makena Resort. The Applicant has and continues to meet with community stakeholders and has conducted community meetings in preparation for and during the environmental review process. In addition, the proposed land plan incorporates the Nāulu Farm, a non-commercial 2-acre farm operated by the Applicant's 'Ōiwi Resources Stewardship Department. The farm's operations are subsidized by a portion of the homeowners' association fees.**			
CHAPTER 8 – DIRECTED GROWTH PLAN			
URBAN AND SMALL TOWN GROWTH AREA			
Goal:			
8.1 Maui will have well-serviced, complete, and vibrant urban communities and traditional small towns through sound planning and clearly defined development expectations.	✓		
Policies:			
8.1.a The County, with public input, will be responsible for designating new growth areas where infrastructure and public facilities will be provided, consistent with the policies of the MIP and in accordance with State and County infrastructure plans.			✓
8.1.b Amendments to a UGB or STB shall be reviewed as a MIP amendment. A UGB or STB shall only be expanded if the island-wide inventory (maintained by the Department of Planning) of existing land uses (residential, commercial, industrial) indicates that additional urban density land is necessary to provide for the needs of the projected population growth within ten years of that inventory; or, during the decennial update of the MIP.			✓
8.1.c Community plans shall provide for urban density land use designations only within UGBs and Small Towns. The County may only support and approve State Urban Land Use Designations for areas within UGBs, STBs, and Rural Villages.		✓	

Maui Island Plan Goals, Objectives and Policies Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable		DA	IA	NA
8.1.d	The unique character and function of existing small towns shall be protected to retain and preserve their sense of place.			✓
8.1.e	New development shall be consistent with the UGBs, STBs, and all other applicable policies of the MIP. New urban-density development shall not be allowed outside of a UGB or STB.	✓		
8.1.f	The County, as a condition of development approval, shall require developers of privately owned infrastructure systems to provide financial insurance (bonding, etc.) for the operation and maintenance of these systems.			✓
8.1.g	The County shall implement a zoning program to comprehensively redistrict and rezone lands within UGBs according to updated community plan policies and map designations.			✓
8.1.h	The County will seek to focus capital improvements (schools, libraries, roads, and other infrastructure and public facilities) within the UGBs and STBs in accordance with the MIP.			✓
8.1.i	The County will promote (through incentives, financial participation, expedited project review, infrastructure/public facilities support, etc.) appropriate urban infill, redevelopment and the efficient use of buildable land within UGBs to avoid the need to expand the UGBs.	✓		
8.1.j	The MIP's UGBs and STBs shall not be construed or implemented to prohibit the construction of a single-family dwelling on any existing parcel where otherwise permitted by law.			✓
Analysis: **The Proposed Action is directly applicable to the goal and above-noted policies for urban and small-town growth areas. The proposed development is located on lands within the UGB as set forth by the MIP. The Proposed Action involves development of a low-density master-planned residential community in an area suited for this type of development, amid similar communities, where infrastructure will be available concurrently with development. As such, the Proposed Action is consistent with the MIP and will be implemented in accordance with State and County infrastructure requirements.**				
RURAL GROWTH AREA				
Goal:				
8.2	Maui will maintain opportunities for agriculture and rural communities through sound planning and clearly defined development expectations.			✓
Policies:				
8.2.a	Amendments to a RGB shall be reviewed as an MIP amendment. A RGB shall only be expanded if an island-wide inventory of existing land uses (residential, commercial, industrial) indicates that additional lands are necessary to provide for the needs of the projected population growth within ten years of that inventory; or, during the decennial update of the MIP.			✓
8.2.b	New development shall be consistent with RGB and all other applicable policies and requirements of the MIP. Public, quasi-public, civic, and limited commercial or industrial uses may be allowed in the RGB when the proposed uses demonstrate a public need and are consistent with the Community Plan and zoning.			✓
8.2.c	Environmental protection and compatibility will be a top priority in rural growth areas.			✓

Maui Island Plan Goals, Objectives and Policies Key: DA = Directly Applicable, IA = Indirectly Applicable, NA = Not Applicable		DA	IA	NA
8.2.d	All development within rural growth areas should avoid encroachment upon prime agricultural land.			✓
8.2.e	Rural growth areas include Rural Residential Areas and Rural Villages. Rural residential areas may be designated when they are located in association with or on the border of urban growth areas or Small Towns; and/or when they provide for complete, self-sufficient rural communities with a range of uses to be developed at densities that do not require urban infrastructure.			✓
8.2.f	Community plans shall provide for rural density land use designations only within RGBs; provided that limited community plan urban designations may be allowed within Rural Villages. New rural growth areas shall not be located where urban expansion may ultimately become necessary or desirable. New rural-density development shall not be allowed outside of a RGB.			✓
8.2.g	New rural growth areas intended to be complete, self-sufficient rural communities must be located a significant distance from existing urban areas, distinctly separated by agricultural or open lands.			✓
8.2.h	Urban-scale infrastructure and public facilities shall not be provided in rural areas except as described in the defined Level-of-Service (LOS) standards. There should be no expectations of urban services in rural areas.			✓
8.2.i	Urban development standards shall not be required within RGBs except in fulfillment of Federal law.			✓
8.2.j	The unique character and function of existing small towns and rural communities shall be protected to retain and preserve their sense of place.			✓
8.2.k	Preserve rural landscapes in which natural systems, cultural resources, and agricultural lands are protected and development compliments rural character and contributes to the viability of communities and small towns.			✓
8.2.l	The MIP's RGBs shall not be construed or implemented to prohibit the construction of a single family dwelling on any existing parcel where otherwise permitted by law.			✓
8.2.m	The County shall implement a zoning program to comprehensively redistrict and rezone lands within RGBs, and to implement community plan policies and map designations.			✓
8.2.n	At the time of zoning from agricultural to rural, Council will consider prohibiting restrictions on agricultural activity.			✓
Analysis: **The Proposed Action is not directly or indirectly applicable to the above goal and policies related to the MIP Rural Growth Area as the project does not involve lands within the Rural Growth Boundary of the MIP.**				
PROTECTED AREA POLICY				
8.3.a	The Protected Areas in Diagrams E-1, NW-1, N-1, NE-1, S-1, SE-1, and WC-1 should be concurrently reviewed with Table 8-2 and with any proposed land uses that may result in an adverse impact on a Protected Area. The County Council and the Administration should be notified if a Protected Area may be compromised by a development proposal.			✓
Analysis: **The Proposed Action does not involve development on any lands designated in the Protected Areas Diagrams. As such, the Proposed Action is consistent with the Protected Area Policy.**				

SCOPING MEETING PRESENTATIONS AND SIGN-IN SHEETS

APPENDIX

AB

SCOPING MEETING PRESENTATION AND SIGN-IN SHEETS ON JULY 1, 2024

MĀKENA MAUKA

Environmental Impact Statement (EIS)

Monday, July 1, 2024

PUBLIC SCOPING MEETING

EIS PUBLIC SCOPING MEETING AGENDA

1. INTRODUCTION
2. PURPOSE OF TONIGHT'S MEETING
3. PROPOSED ACTION OVERVIEW
4. ENVIRONMENTAL IMPACT STATEMENT (EIS) PROCESS
5. EISPN PUBLIC COMMENTS
   - Opportunity to provide comments that will be included in the Draft EIS
     - Oral comments provided this evening will be audio recorded and published along with the DEIS per Hawai‘i Administrative Rules (HAR) Chapter 11-200.1
     - Oral comments will be summarized and included in the Draft EIS
     - Written comments will be collected and included in the Draft EIS

INTRODUCTION

- **APPLICANT**
  - AREG AC Makena Propco, LLC
    doing business as Mākena Golf & Beach Club Owners

- **TMK Nos.**
  - (2) 2-1-005:108; (2) 2-1-006:036 and 057; (2) 2-1-007:068, 092 and 093; (2) 2-1-008:078, 079, 081 and 090; (2) 2-1-031:036 por.

PURPOSE OF TONIGHT'S MEETING

EIS PUBLIC SCOPING MEETING PURPOSE

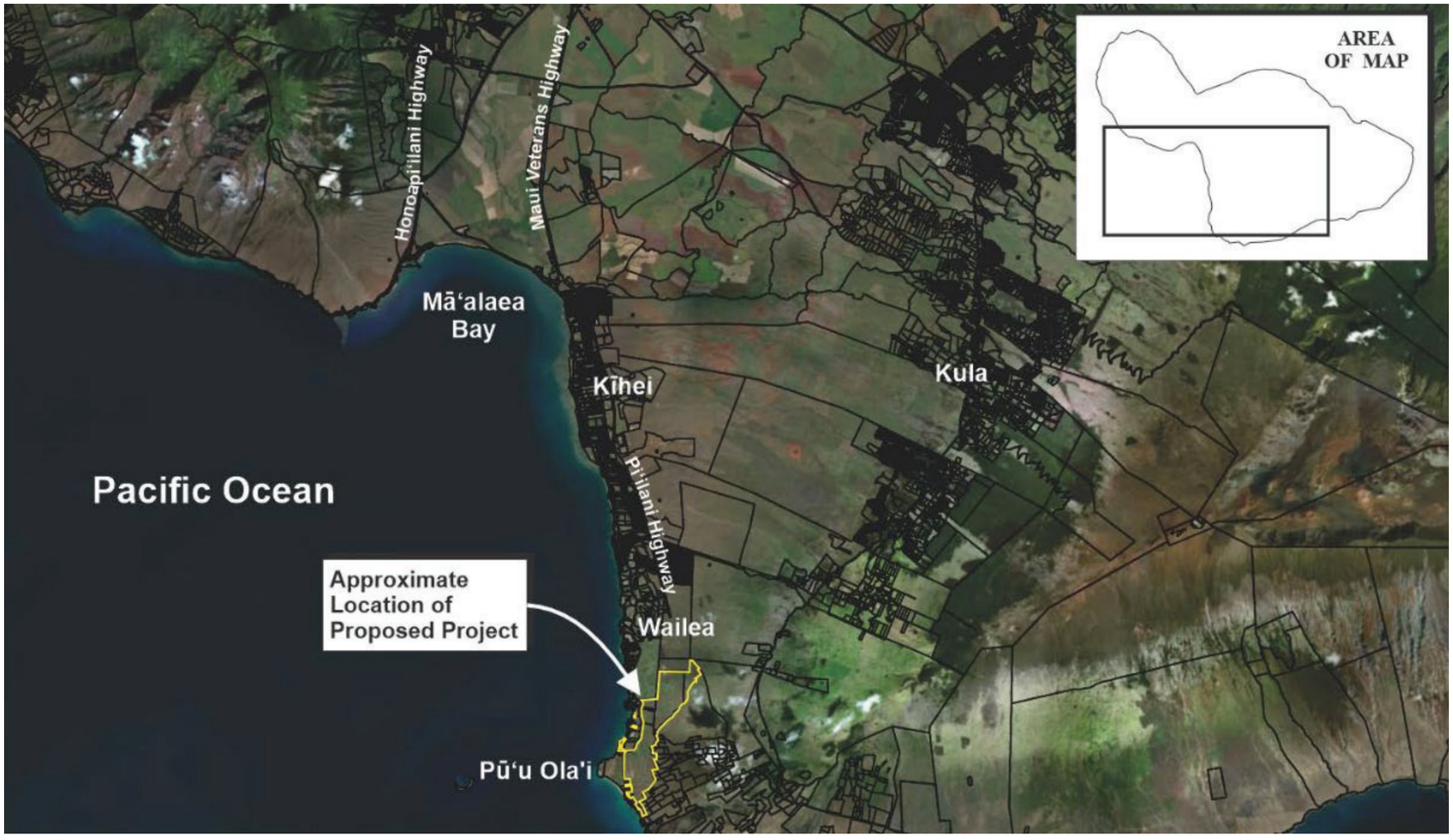
- Receive comments on issues to be studied within the Draft EIS
- This is not a question-and-answer session
- This is an opportunity to provide input and comments to shape the Draft EIS
- We are here to listen to your comments

PROPOSED ACTION OVERVIEW

PROPOSED ACTION

LOCATION

- Within the Makena region of South Maui
- Within the moku of Honuaʻula
- Within the ahupuaʻa of Keauhou, Kalihi, Waipao, Pāpaʻanui, Kāʻeo, Maluaka, Moʻoiki, Moʻoloa and Moʻomuku

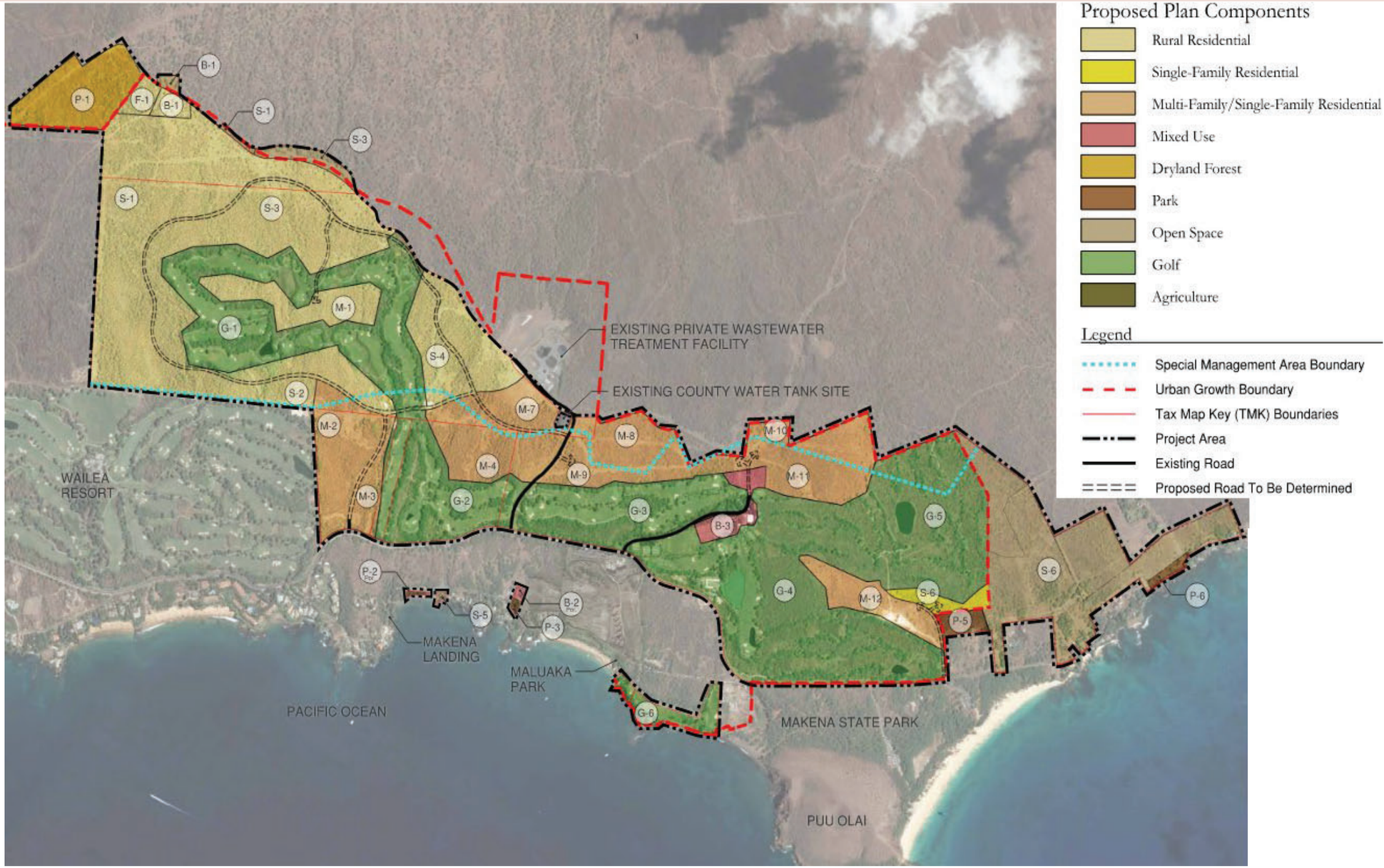


BACKGROUND

- 1970 – Kihei Civic Development Plan identified Makena as a secondary resort-residential community
- 1979 – SMA granted to construct the Maui Prince Hotel
- 1985 – Kihei-Makena Community Plan identified Makena as a planned resort destination area, including golf courses, single-family, multi-family, hotel, public/quasi-public and commercial uses
- 1998 – Kihei-Makena Community Plan maintained the residential, hotel and other uses and recognized Makena as a planned resort destination
- 2009 – Maui County Council approves rezoning for 603 acres under Ordinance 3613 for apartment, community business, resort commercial, hotel, park golf course and residential uses

PROPOSED ACTION

OVERVIEW



SUMMARY

- Low-density master planned residential community will offer market rate housing together with residential workforce housing with a mixture of rural and single-family homes and multifamily residential units.
- An estimated 850-900 total residential units, inclusive of 94-100 onsite workforce housing units are proposed to be constructed across 18 parcels in alignment with the Maui Island Plan
- Mākena Mauka will include a community gathering place, public hiking trails, an emphasis on multi-modal transportation, public beach parking, conservation open space, areas reserved for public shoreline access, and programs to support cultural education
- Construction is anticipated to be completed over a 25-30 year period, dependent upon market conditions
- Workforce housing, park dedication and the related infrastructure improvements/contributions will be provided

EIS PROCESS

PROPOSED ACTION

- This EISPN has been prepared in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and HAR Chapter 11-200.1. Pursuant to HAR Section 11-200.1-7(c), the Maui Planning Commission shall have final authority to accept the EIS due to the first discretionary permit/approval being an SMA Use Permit from the Maui Planning Commission.
- Purpose of an EIS: serves as an informational document to ensure that environmental concerns are given appropriate consideration in decision-making along with economic and technical considerations

PROCESS FLOWCHART

WE ARE HERE

EIS Preparation Notice (EISPN)

June 8 & 23, 2024

60-day Public Comment Period

Draft EIS (DEIS)

- Includes all EISPN public comments

45-day Public Comment Period

Final EIS (FEIS)

- Includes all DEIS public comments

- Accepting authority is the Maui Planning Commission

EIS PREPARATION NOTICE (EISPN)

- The EISPN is available at the State of Hawai‘i Environmental Review Program website:

  https://files.hawaii.gov/dbedt/erp/Doc_Library/2024-06-08-MA-EISPN-Makena-Mauka.pdf

- The EISPN is available on the Mākena Mauka EIS and permitting website:

  www.makenapermitting.com

- The 60-day public comment period will be open through August 7th, 2024

- The second Public Scoping Meeting will be held at 6pm on Tuesday, July 30th, 2024 at the Lokelani Intermediate School cafeteria

TECHNICAL STUDIES

- Air Quality Assessment Report
- Archaeological reports and documentation
- Cultural Impact Assessment
- Design Guidelines
- Economic & Fiscal Impact Analysis Report
- Flora & Fauna Survey
- Groundwater Resources Impact Assessment Report
- Market Study
- Noise Assessment Report
- Preliminary Engineering & Drainage Report
- Sustainability Report
- Traffic Impact Analysis Report
- Transportation Management Plan
- View Analysis
- Water Quality & Marine Biology Assessment Report

EISPN PUBLIC COMMENTS

OPTIONS TO SUBMIT

1. ORAL COMMENTS
   - Please share your comments with us tonight or at the July 30th scoping meeting. All oral comments will be audio recorded and a written summary will be included within the Draft EIS

2. WRITTEN COMMENTS BY MAIL
   - Send your written comments to:

     Munekiyo & Hiraga, attn: Mākena Mauka
     305 High St., Suite 104
     Wailuku, HI 96793

3. WRITTEN COMMENTS ONLINE → www.makenapermitting.com

4. WRITTEN COMMENTS BY EMAIL → eis@makenagbc.com

ORAL COMMENTS TONIGHT

- Testifiers will be given the opportunity to testify in order

- The goal is for everyone wishing to give oral testimony an equal opportunity to speak tonight should they wish to do so

- Comments will be audio recorded, summarized, and responded to in the DEIS

MAHALO FOR ATTENDING

www.makenapermitting.com

www.makenainfo.com

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Malcolm Center - 1305 North Holopono Street, Suite 5, Kīhei, Hawai'i 96753

July 1, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
Kainohi Lee	[redacted]			
Terry A.K Miller				
Lala Johnson				x 23
Leinaala Vedder				X 1
Enzo Maggiozzi				
Everett K Kawelo				
JEFF LAHL				
Suzanne LAHL				X 4
Kale'a Paiva				
ERIC Gerlach				
Kahele Dukelow				X 5
Gabriela Odlum				
Casey Lamb				
Frances Oliveira				

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Malcolm Center - 1305 North Holopono Street, Suite 5, Kīhei, Hawai'i 96753

July 1, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
Jacqueline "Nalani Ferreira	[redacted]			X 2
Lani Eckart-Dodd				X 3
Scarlett MARTEN				X ?
Meli King				
Lani Espinda				
LUCIENNE deNAIE				X 6
Gary Burden				
Keala Kaopuiki-Santos				X 9
Nancy Hatley				
Sarah Escobedo Brandenstein				X ~~18~~ 26
Keola Sheller				X 15
#				25
Kumu Nina				27

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Malcolm Center - 1305 North Holopono Street, Suite 5, Kīhei, Hawai'i 96753

July 1, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
Heidi L-C	[redacted]			
Laura Mendolia				
NOA KONG				
Janine Linko Masaki				
Joyce Hasebe				
Neena Gaddam				
Justin Kekiwi				X 7
Manuel Kuloloio				8
Kamanao'io Gomes				
Imelda & Chris				
Abner DeLima				
Lanikue Pedro				
Kristy Wong-Stone				X 18
Sesame Shim				X 13

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Malcolm Center - 1305 North Holopono Street, Suite 5, Kīhei, Hawai'i 96753

July 1, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
MALUHIA Low			[redacted]	

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Malcolm Center - 1305 North Holopono Street, Suite 5, Kīhei, Hawai'i 96753

July 1, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
CHIVAS LUDLOFF-ELLSWICK	[redacted]			
KEKAHE KULOLOIO RUIDAS				
Kahealani Naeole				X 11
Darryll Naeole				X
Mirra Rose				
Johnny K Prones				
LINDA Stiles				X 12
HATTIE KING				X 14
Victoria Mokiao-Laia				X 16
KANOE PACHECO				
Shana Wallace				X 17
Pahnelopi McKenzie				20
KILEY ADOLPHO				19
Colin McCormick				21

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Malcolm Center - 1305 North Holopono Street, Suite 5, Kīhei, Hawai'i 96753

July 1, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
[redacted]	[redacted]	[redacted]	[redacted]	X 22
Kaneali'i Williams				X 24

RETYPED SIGN-IN SHEETS

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Malcolm Center - 1305 North Holopono Street, Suite 5, Kīhei, Hawai‘i 96753

July 1, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments (“X”)
Ka‘ōnohi Lee				
Terry A.K. Miller	[redacted]	[redacted]	[redacted]	
Lala Jonnson	[redacted]	[redacted]	[redacted]	X 23
Leinaala Vedder				X 1
Enzo Magliozzi	[redacted]	[redacted]	[redacted]	
Everett C. Ferreira	[redacted]	[redacted]	[redacted]	
Jeff Lahl	[redacted]	[redacted]	[redacted]	
Suzanne Lahl	“ “	[redacted]	[redacted]	X 4
Kale‘a Paiva	[redacted]	[redacted]	[redacted]	
Eric Gerlach	[redacted]	[redacted]	[redacted]	
Kahele Dukelow	[redacted]	[redacted]	[redacted]	X 5
Gabriela Odent	[redacted]		[redacted]	
Casey Lamb	[redacted]	[redacted]	[redacted]or	
Frances Olrite (?)	[redacted]	[redacted]	[redacted]	

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Malcolm Center - 1305 North Holopono Street, Suite 5, Kīhei, Hawai'i 96753

July 1, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
Jacqueline "Nalani" Perreira	[redacted]	[redacted]	[redacted]	X 2
Lani Eckart-Dodd	[redacted]	[redacted]	[redacted]	X 3
Scarlett Marten	[redacted]	[redacted]	[redacted]m	X ?
Meli King	[redacted]	[redacted]	[redacted]	
Lani Espinoza	[redacted]	[redacted]	[redacted]	
Lucienne deNaie	[redacted]	[redacted]	[redacted]	X
Gary Burda	[redacted]	[redacted]	[redacted]	
Keala Kaopuiki-Santos	[redacted]	[redacted]	[redacted]	X 9
Nancy Halley	[redacted]	[redacted]		
Sarah Escobido Brandersten	[redacted]	[redacted]	[redacted]	X 26
Keola Sheller	[redacted]	[redacted]	[redacted]	X 15
Kumu Nina				27
Heiki L. (illegible)	[redacted]	[redacted]		
Laura Mendolia	[redacted]	[redacted]	[redacted]	

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Malcolm Center - 1305 North Holopono Street, Suite 5, Kīhei, Hawai‘i 96753

July 1, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments (“X”)
Noa Kong	[redacted]	[redacted]	[redacted]	
Janine Linko Masaki	[redacted]	[redacted]	[redacted]	
Joyce Hasebe	[redacted]	[redacted]	[redacted]	
Neena Goldberg	[redacted]	[redacted]	[redacted]	
Justin Kekiwi	[redacted]	[redacted]	[redacted]	X 7
Manuel Kuloloio	[redacted]	[redacted]	[redacted]	X 8
Kamanaoi‘o Gomes	[redacted]	[redacted]	[redacted]	
Imelda & Chris	[redacted]	[redacted]	[redacted]	
Abner Delima	[redacted]	[redacted]		
Lani Rae Pedro	[redacted]	[redacted]	[redacted]	
Kristy Wong-Stone	[redacted]	[redacted]	[redacted]	X 18
Sesame Shim	[redacted]	[redacted]	[redacted]	X 13
Maluhia Lou			[redacted]	
Chivas Ludloff-Ellswick	[redacted]	[redacted]	[redacted]	

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Malcolm Center - 1305 North Holopono Street, Suite 5, Kīhei, Hawai'i 96753

July 1, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
Kekane Kuloloio Ruidas	[redacted]	[redacted]	[redacted]	
Kahealani Nae'ole	[redacted]		[redacted]	X 11
Darryll Nae'ole	[redacted]	[redacted]	[redacted]	X
Mirra Rose	[redacted]	[redacted]	[redacted]	
Johnny K. Prones	[redacted]	[redacted]	[redacted]	
Linda Stiles	[redacted]	[redacted]	[redacted]	X 12
Hattie King	[redacted]	[redacted]	[redacted]	X 14
Victoria Mokiao-Laa	[redacted]	[redacted]	[redacted]	X 16
Kanoe Pacheco	[redacted]	[redacted]	[redacted]	
Shana Wallace	[redacted]	[redacted]	[redacted]	X
Pahnelopi McKenzie	[redacted]		[redacted]	X 17
Kiley Adolpho	[redacted]		[redacted]	X 19
Colin McCormick	[redacted]	[redacted]	[redacted]	X 21
(illegible)	[redacted]	[redacted]	[redacted]	X 22

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Malcolm Center - 1305 North Holopono Street, Suite 5, Kīhei, Hawai'i 96753

July 1, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
Kanealii Williams	[redacted]	[redacted]	[redacted]	X 24

SCOPING MEETING PRESENTATION AND SIGN-IN SHEETS ON JULY 30, 2024

MĀKENA MAUKA

Environmental Impact Statement (EIS)

Tuesday, July 30, 2024

PUBLIC SCOPING MEETING

EIS PUBLIC SCOPING MEETING AGENDA

1. INTRODUCTION
2. PURPOSE OF TONIGHT'S MEETING
3. PROPOSED ACTION OVERVIEW
4. ENVIRONMENTAL IMPACT STATEMENT (EIS) PROCESS
5. EISPN PUBLIC COMMENTS

INTRODUCTION

- **APPLICANT**
  - AREG AC Makena Propco, LLC
    doing business as Mākena Golf & Beach Club
- **TMK Nos.**
  - (2) 2-1-005:108; (2) 2-1-006:036 and 057; (2) 2-1-007:068, 092 and 093; (2) 2-1-008:078, 079, 081 and 090; (2) 2-1-031:036 por.

PURPOSE OF TONIGHT'S MEETING

EIS PUBLIC SCOPING MEETING PURPOSE

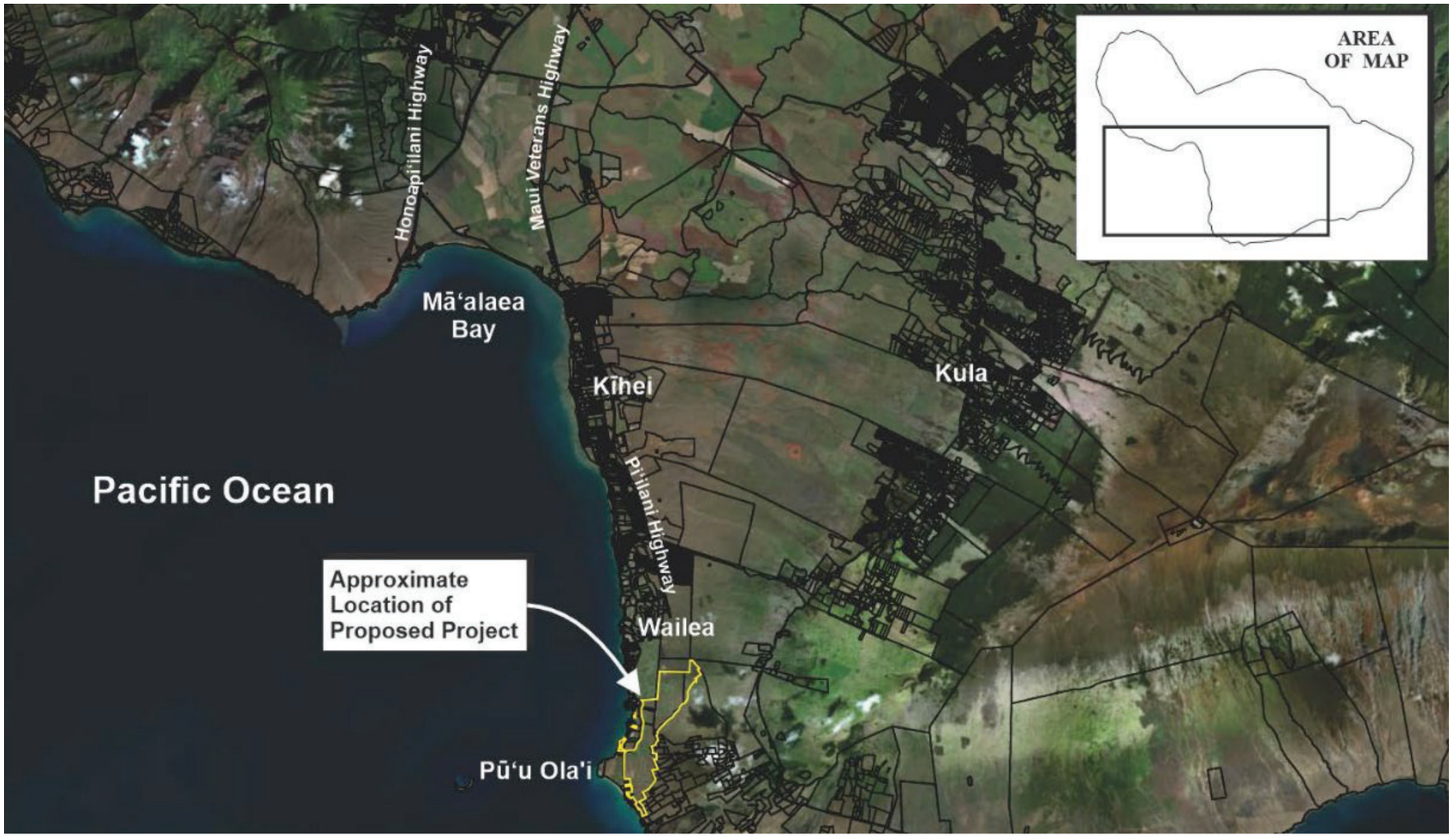
- Receive comments on issues to be studied within the Draft EIS
- We are here to listen to your comments
- This is not a question-and-answer session
- This is an opportunity to provide input and comments to shape the Draft EIS

PROPOSED ACTION OVERVIEW

PROPOSED ACTION

LOCATION

- Within the Makena region of South Maui
- Within the moku of Honuaʻula
- Within the ahupuaʻa of Keauhou, Kalihi, Waipao, Pāpaʻanui, Kāʻeo, Maluaka, Moʻoiki, Moʻoloa and Moʻomuku

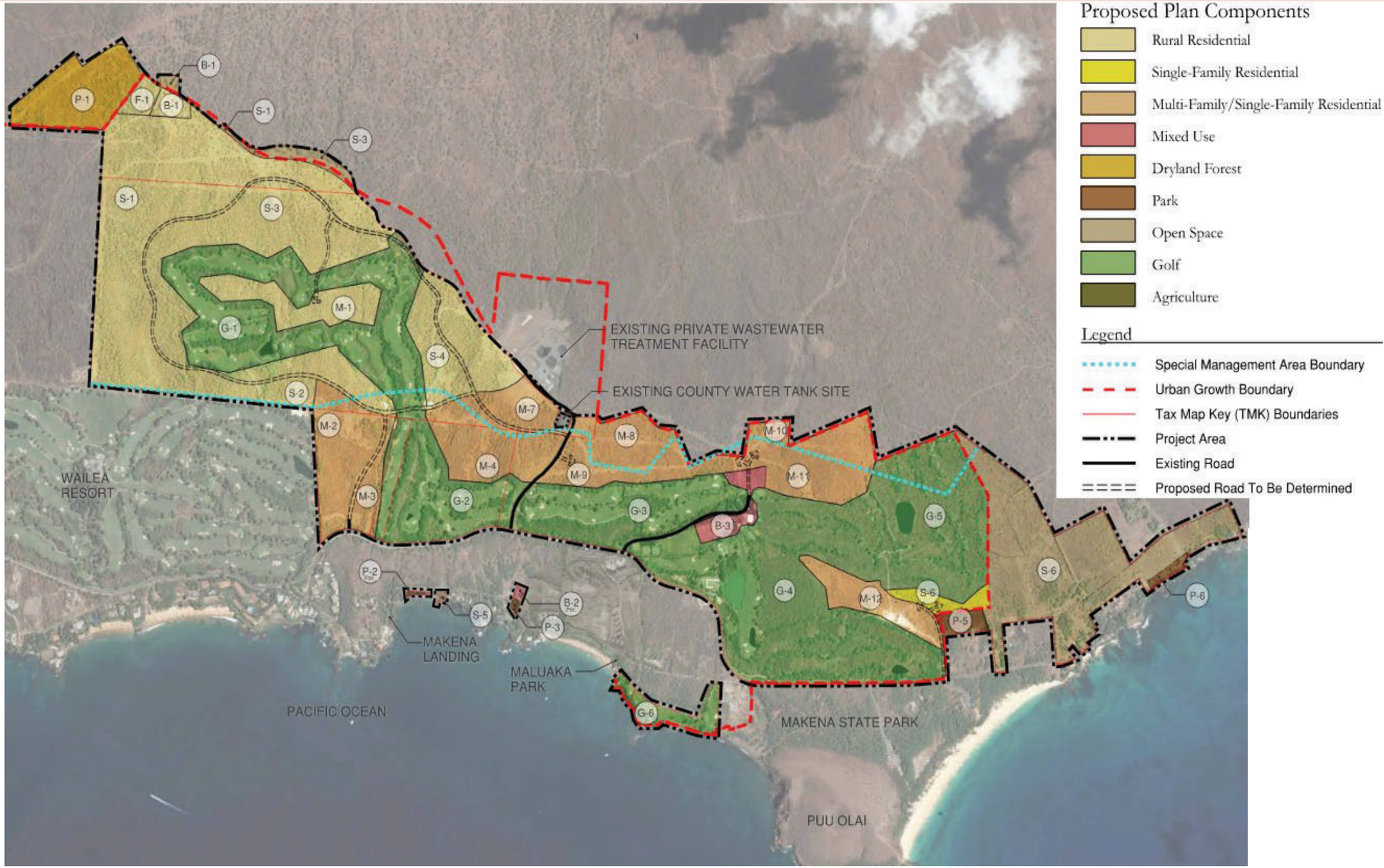


BACKGROUND

- 1970 – Kihei Civic Development Plan identified Makena as a secondary resort-residential community
- 1979 – SMA granted to construct the Maui Prince Hotel
- 1985 – Kihei-Makena Community Plan identified Makena as a planned resort destination area, including golf courses, single-family, multi-family, hotel, public/quasi-public and commercial uses
- 1998 – Kihei-Makena Community Plan maintained the residential, hotel and other uses and recognized Makena as a planned resort destination
- 2009 – Maui County Council approves rezoning for 603 acres under Ordinance 3613 for apartment, community business, resort commercial, hotel, park golf course and residential uses

PROPOSED ACTION

OVERVIEW



SUMMARY

- Low-density master planned residential community will offer market rate housing together with residential workforce housing with a mixture of rural and single-family homes and multifamily residential units.
- An estimated 850-900 total residential units, inclusive of 94-100 onsite workforce housing units are proposed to be constructed across 1,043 acres in alignment with the Maui Island Plan
- Mākena Mauka will include a community gathering place, public hiking trails, an emphasis on multi-modal transportation, public beach parking, conservation open space, areas reserved for public shoreline access, and programs to support cultural education
- Construction is anticipated to be completed over a 25-30 year period, dependent upon market conditions
- Workforce housing, park dedication and the related infrastructure improvements/contributions will be provided

EIS PROCESS

PROPOSED ACTION

- This EISPN has been prepared in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343 and HAR Chapter 11-200.1. Pursuant to HAR Section 11-200.1-7(c), the Maui Planning Commission shall have final authority to accept the EIS due to the first discretionary permit/approval being an SMA Use Permit from the Maui Planning Commission.
- The purpose of an EIS is to serve as an informational document to ensure that environmental concerns are given appropriate consideration in decision-making along with economic and technical considerations

PROCESS FLOWCHART

WE ARE HERE

EIS Preparation Notice (EISPN)

June 8 & 23, 2024

60-day Public Comment Period

Draft EIS (DEIS)

- Includes all EISPN public comments

45-day Public Comment Period

Final EIS (FEIS)

- Includes all DEIS public comments

- Accepting authority is the Maui Planning Commission

EIS PREPARATION NOTICE (EISPN)

- The EISPN is available at the State of Hawai‘i Environmental Review Program website:

  https://files.hawaii.gov/dbedt/erp/Doc_Library/2024-06-08-MA-EISPN-Makena-Mauka.pdf

- The EISPN is available on the Mākena Mauka EIS and permitting website:

  www.makenapermitting.com

- The 60-day public comment period will be open through August 7th, 2024

- The second Public Scoping Meeting will be held at 6pm on Tuesday, July 30th, 2024 at the Lokelani Intermediate School cafeteria

EISPN PUBLIC COMMENTS

OPTIONS TO SUBMIT COMMENTS

1. ORAL COMMENTS
   - Please share your comments with us tonight or at the July 30th scoping meeting. All oral comments will be audio recorded and a written summary will be included within the Draft EIS

2. WRITTEN COMMENTS BY MAIL
   - Send your written comments to:

     Munekiyo & Hiraga, attn: Mākena Mauka
     305 High St., Suite 104
     Wailuku, HI 96793

3. WRITTEN COMMENTS ONLINE → www.makenapermitting.com

4. WRITTEN COMMENTS BY EMAIL → eis@makenagbc.com

ORAL COMMENTS TONIGHT

- Testifiers will be given the opportunity to testify in order

- The goal is for everyone wishing to give oral testimony an equal opportunity to speak tonight should they wish to do so

- Comments will be audio recorded, summarized, and responded to in the DEIS

MAHALO FOR ATTENDING

www.makenapermitting.com

www.makenainfo.com

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Lokelani Intermediate School Cafeteria – 1401 Liloa Drive, Kīhei, Hawai'i 96753

July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
Shawn Wallace	[redacted]			X (17)
ISAAC CALDERON				
TYLER SMITH				
Laiq Callahan				X (28)
Nāwahī Hill				
Bambi Kekiwi				
Hollie Bearden				
Kate Austin				X (33)
Kealoha Ishikawa				
Sarah Ishikawa				
Amber Lee Dambacher				
Mocha Fernandez				
Taysia Kekiwi				
Aspen Cruz Wallace				(40)

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Lokelani Intermediate School Cafeteria – 1401 Liloa Drive, Kīhei, Hawai'i 96753

July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
TONY SILVA				(1)
~~Bob~~				
Kalei				
NÀWA				
Kaila KeKiwi				no
Jobi Miguel	[redacted]			no
Sesame Shim				yes (18)
Kaliko Ka'auamo				yes (19)
Josh Rock				
Linda Egar				no
Sancia Miala Shiba Nash				no
Nancy Halley				.com
~~JACQUI MIRANDA~~				m (no)
Laurie Robeshaw				no

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Lokelani Intermediate School Cafeteria – 1401 Liloa Drive, Kīhei, Hawai'i 96753

July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
Kahealani Miller	[redacted]			no
Mikahala Helm				(5) X yes
Malie-Bertha Verkerk				No
Nalani Ferreira				NO
Hina Kneubuhl				Yes (7)
Wela Hawthorne				yes 8
Sheila Walker				?
Lani Gomes				No
Kristen Floyd				Yes 13
Nani + Keha Kamalii				No
Meli King				yes 15
Leinoa Kong				NO
Enzo Magliozzi				
Jake Carton				No

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Lokelani Intermediate School Cafeteria – 1401 Liloa Drive, Kīhei, Hawai'i 96753

July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
Karen Abhilani Hue Sing	[redacted]	[redacted]	[redacted]	
Kaliko Kaauamo	[redacted]	[redacted]	[redacted]	gmail X (2)
Mingaka Kapuaahiwalani	[redacted]	[redacted]	[redacted]	X (3)
Marata Hoet	[redacted]	[redacted]	[redacted]	X (4)
Janelle Kekiwi	[redacted]	[redacted]	[redacted]	X
Isaac De La Nue	[redacted]	[redacted]	[redacted]	X (9)
Kalama Takanashi	[redacted]	[redacted]	[redacted]	X (6)
S. Leihuanani Bissou	[redacted]	[redacted]	[redacted]	
Kicii Colliet	[redacted]	[redacted]	[redacted]	X (10)
Dianah Kapai	[redacted]	[redacted]	[redacted]	
Kahele Dukelu	[redacted]	[redacted]	[redacted]	X (11)
Francine Aarona	[redacted]	[redacted]	[redacted]	X (12)
Curen Ohama	[redacted]	[redacted]	[redacted]	X (14)
Candace Coleman	[redacted]	[redacted]	[redacted]	

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Lokelani Intermediate School Cafeteria – 1401 Liloa Drive, Kīhei, Hawai'i 96753

July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
Kaniloa Kamaunu	[redacted]			X (16)
KYLE GINOZA				
Kaonohi Lee				
Kristen Sardinha				
Dominic Sardinha Jr				
Kekahuna, Janice N.				X (21)
Nalei Pokipala				
Amy Sloan				
Casey Kekiwi				X (22)
Justin Kekiwi				X (24)
Hannah Talaus				
MALANI SANTOS				
STEPHAN BAKER				X 25
Kalai Calderon				

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Lokelani Intermediate School Cafeteria – 1401 Liloa Drive, Kīhei, Hawai'i 96753

July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
Tiare Lawrence	[redacted]			Yes 20
Scotty Miller				
MARIA OXENFORD				
Manual Kuloloio				x 58
ERIN ALLAN				
MICHAEL SZIGETI				
Rosa Gonzalez				
CHRIS SAITO				yes 23
Eric Wahinehookee				
Kauai Lu'uwai				~~Yes~~ 26
Kanoe Pacheco				
NATASHA CHANG				Yes 27
Natalie Kemper				
Steven & Lucy Chang				

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Lokelani Intermediate School Cafeteria – 1401 Liloa Drive, Kīhei, Hawai'i 96753

July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
Jon-Michael Belina	[redacted]			
Ashley Wendt				
Joshua Lum				
Laura Burleson				om
Tracy Patton				
Angela Burdick				29
Elizabeth Ray				30 X
Brandi Corpuz				X 32
Paele Kiakona				34
'Ulili Gillespie				
Meghan Hernandez				
Chanel Guzman				36
Molly Phipps				
Richard "Aina" Kekiwi				38

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Lokelani Intermediate School Cafeteria – 1401 Liloa Drive, Kīhei, Hawai'i 96753

July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
Lei Skelii Koa	[redacted]			
Kylankah Sphadlik				X 31
Oniff Dempsey				
Maria Bews				
Leinā'ala Kulolaio Vedder				X 35
Dustin Draper				
Cody Roberts				
Johnny K Proners				
[illegible]				
Kalei Luuwai				X 37
Ashlie McGuire				X 39
Jayke Ugo				
Jennifer Clarke				
[illegible]				

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Lokelani Intermediate School Cafeteria – 1401 Liloa Drive, Kīhei, Hawai'i 96753

July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
Kaniela Naeʻole Naʻauao	[redacted]	[redacted]	[redacted]	
Laʻakea Webb	[redacted]	[redacted]	[redacted]	47
Katalina Nakoa	[redacted]	[redacted]	[redacted]	
FELICIA YADAO	[redacted]	[redacted]	[redacted]	
Ashley Tahauri	[redacted]	[redacted]	[redacted]	59
Laʻakea Joy	[redacted]	[redacted]	[redacted]	
Kūākea Yasak	[redacted]	[redacted]	[redacted]	
Courtney Lazo	[redacted]	[redacted]	[redacted]	50
ʻAukai Joy	[redacted]	[redacted]	[redacted]	
Tiane Lucas	[redacted]	[redacted]	[redacted]	
Kamakana Mohene Kille	[redacted]	[redacted]	[redacted]	
Q. Emiko Joy	[redacted]	[redacted]	[redacted]	
	[redacted]	[redacted]	[redacted]	
	[redacted]	[redacted]	[redacted]	

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Lokelani Intermediate School Cafeteria – 1401 Liloa Drive, Kīhei, Hawai'i 96753

July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
Tyler Keonekai Rabara	[redacted]			X 41
				42
Lani Espinoza				43
MALUHIA LOW				44
Kawai Kapuni				5
Chivo Ching-Johnson				6
Kamanaoio Gomes (Lana Ideta-Gomes)				48
Donna Borge				
Rio Taylor				
Melanie Chan-Vinoray				
ANU NAEOLE				
Ed Joy				
Everett K. Ferreira				
[illegible] Hill				X51

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

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July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
Linda Stiles	[redacted]			
Hettie King				
Marian Salado				
Ellis Bloyer				
Leslie M. LeGaux				60
D Kaniele Jay				
Lala Johnson				
Paul Lu'uwai				
Stacy Cusen				
~~Ka'ihane Lunwai~~				
Emalani Kekauoha-Schultz				49
Lynn Keahi				
KIANA KEYSER				
Lana Albright				

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

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July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
Wālelia Chang	[redacted]			
Ca Ritte				NO
Annie Provencher				52
Kalena Shim				
Kaylee Sheller				NO
Victoria Mokiao-La'a				NO
Ulrich Wolters				~~NO~~ Yes 54
CHRISTINA DELIMA				NO
Allison Na'auao				yes 56
Mikey Burke				yes 57

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

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July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments ("X")
Kuʻumaka Ruidas	[redacted]			
WALTERO ʻOHANA				
Kahekili Pa-Kala				
Nancy Hoag				53
Kekane Kuloloio				
James Forrest				55
Kalele Uekanoka-Schultz				

RETYPED SIGN-IN SHEETS

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Lokelani Intermediate School Cafeteria – 1401 Liloa Drive, Kīhei, Hawai‘i 96753

July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments (“X”)
Shana Wallace	[redacted]	[redacted]	[redacted]	X
Isaac Calderon	[redacted]	[redacted]	[redacted]	
Tyler Smith	[redacted]	[redacted]		
La‘a Callahan				X
Nawahi Hill				
Bambi Kekiwi	[redacted]	[redacted]	[redacted]	
Hollie Bearden	[redacted]	[redacted]	[redacted]	
Katie Austin	[redacted]	[redacted]	[redacted]	X
Kealoha Ishikawa	[redacted]	[redacted]	[redacted]	
Sarah Ishikawa	[redacted]	[redacted]	[redacted]	
Amber Lee Dambacher	[redacted]	[redacted]		
Mocho Fernandez	[redacted]	[redacted]	[redacted]	
Taysia Kekiwi	[redacted]	[redacted]	[redacted]	
Aspen Cruz-Wallace	[redacted]	[redacted]	[redacted]	X

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Lokelani Intermediate School Cafeteria – 1401 Liloa Drive, Kīhei, Hawai‘i 96753

July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments (“X”)
Tony Silva				X
Kauʻi				
Nāwa				
Kaila Kekiwi				
Jobi Miguel	[redacted]	[redacted]	[redacted]	
Sesame Shim	[redacted]	[redacted]	[redacted]	X
Kaliko Kaʻauamo				X
Josh Ricek	[redacted]	[redacted]		
Linda Eger	[redacted]	[redacted]	[redacted]	
Sancia Miala Shiba Nash	[redacted]	[redacted]	[redacted]	
Nancy Halley	[redacted]	[redacted]	[redacted]	
Jacqui Miranda	[redacted]		[redacted]	
Laurie Robertson	[redacted]	[redacted]	[redacted]	
Kahealani Miller	[redacted]	[redacted]	[redacted]	

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Lokelani Intermediate School Cafeteria – 1401 Liloa Drive, Kīhei, Hawai‘i 96753

July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments (“X”)
Mikahala Helm	[redacted]	[redacted]	[redacted]	X
Mālie Bertha Verkerke	[redacted]		[redacted]	
Nalani Perreira	[redacted]	[redacted]	[redacted]	
Hina Kneubuhl	[redacted]	[redacted]	[redacted]	X
Wela Henuhewa	[redacted]	[redacted]	[redacted]	X
Sheila Walker	[redacted]	[redacted]	[redacted]	
Lani Gomes	[redacted]	[redacted]	[redacted]	
Kristen Floyd	[redacted]	[redacted]	[redacted]	X
Nani and Keha Kamalii	[redacted]	[redacted]	[redacted]	
Meli King	[redacted]	[redacted]	[redacted]	X
Leinoa Kong	[redacted]	[redacted]	[redacted]	
Enzo Magliozzi	[redacted]	[redacted]	[redacted]	
Jake Carton	[redacted]		[redacted]	
Karen (illegible) Hue Sing	[redacted]		[redacted]	X

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Lokelani Intermediate School Cafeteria – 1401 Liloa Drive, Kīhei, Hawai‘i 96753

July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments (“X”)
Kaliko Kaauamo	[redacted]		[redacted]	X
Minoaka Kapuaahiwalani	[redacted]	[redacted]	[redacted]	X
Marata Hoet	[redacted]	[redacted]	[redacted]	X
Janelle Kekiwi	[redacted]	[redacted]	[redacted]	
Isaac De La Nux	[redacted]	[redacted]	[redacted]	X
Kalama Takahashi	[redacted]	[redacted]	[redacted]	X
S. Leihuanaui Biggeu	[redacted]	[redacted]	[redacted]	
Kiai Collier	[redacted]	[redacted]	[redacted]	X
Dianah Kapoi	[redacted]	[redacted]	[redacted]	
Kahele Dukelow	[redacted]	[redacted]	[redacted]	X
Francine Aarona	[redacted]	[redacted]	[redacted]	X
Curen Ohama	[redacted]	[redacted]	[redacted]	X
Candace Coleman		[redacted]	[redacted]	
Kaniloa Kamaunu		[redacted]		X

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Lokelani Intermediate School Cafeteria – 1401 Liloa Drive, Kīhei, Hawai‘i 96753

July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments (“X”)
Kyle Ginoza		[redacted]	[redacted]	
Kaonohi Lee		[redacted]		
Kristen Sardinha	[redacted]	[redacted]		
Dominic Sardinha Jr.	[redacted]	[redacted]		
Kekahuna, Janice N.	[redacted]	[redacted]	[redacted]	X
Nalei Pokipala				
Amy Sloan	[redacted]	[redacted]	[redacted]	
Casey Kekiwi	[redacted]	[redacted]	[redacted]	X
Justin Kekiwi	[redacted]	[redacted]		X
Hannah Talaus	[redacted]	[redacted]	[redacted]	
Malani Santos	[redacted]	[redacted]	[redacted]	
Stephan Boeker	[redacted]	[redacted]	[redacted]	X
Kalae Calderon	[redacted]	[redacted]	[redacted]	
Tiare Lawrence			[redacted]	X

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Lokelani Intermediate School Cafeteria – 1401 Liloa Drive, Kīhei, Hawai‘i 96753

July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments (“X”)
Scong Miller	[redacted]	[redacted]		
Maria Oxenford	[redacted]	[redacted]		
Manuel Kuloloio	[redacted]	[redacted]	[redacted]	X
Erin Allan	[redacted]	[redacted]		
Michael Szigeti	[redacted]	[redacted]		
Rosa Gonzalez		[redacted]		
Chris Saito	[redacted]	[redacted]		X
Eric Wahinehookoe	[redacted]	[redacted]	[redacted]	
Kawai Lu‘uwai	[redacted]	[redacted]		
Kanoe Pacheco	[redacted]	[redacted]		
Natasha Chang	[redacted]	[redacted]	[redacted]	X
Natalie Kemper	[redacted]	[redacted]	[redacted]	
Steven & Lucy Chang	[redacted]	[redacted]	[redacted]	
Jon-Michael Delima	[redacted]	[redacted]	[redacted]	

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

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July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments (“X”)
Ashley Wendt	[redacted]	[redacted]	[redacted]	
Joshua Lum	[redacted]	[redacted]	[redacted]	
Laura Burleson	[redacted]	[redacted]	[redacted]	
Tracy Payton	[redacted]	[redacted]	[redacted]	
Angela Burdick	[redacted]	[redacted]	[redacted]	X
Elizabeth Ray	[redacted]	[redacted]	[redacted]	X
Brandi Corpuz			[redacted]	X
Paele Kiakona	[redacted]	[redacted]	[redacted]	X
‘Ulili Quenga	[redacted]	[redacted]	[redacted]	
Meghane Hernandez	[redacted]	[redacted]	[redacted]	
Chanel Guzman	[redacted]	[redacted]	[redacted]	X
Molly Phipps	[redacted]	[redacted]	[redacted]	
Richard “aina” Kekiwi	[redacted]	[redacted]	[redacted]	X
Lei Skelii Koa	[redacted]		[redacted]	

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

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July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments (“X”)
Kylannah Sphadliz	[redacted]			X
Matt Dempsey	[redacted]			
Maria Bews	[redacted]		[redacted]	
Leinā‘ala Kulololoio Vedder	[redacted]			X
Dustin Draper	[redacted]			
Cody Roberts	[redacted]		[redacted]	
Johnny K Prones	[redacted]		[redacted]	
Roderick Aray	[redacted]		[redacted]	
Kalei Luuwai	[redacted]		[redacted]	X
Ashlie McGuire	[redacted]			X
Jayke Llego	[redacted]			
Jennifer Clarke	[redacted]		[redacted] (?)	
Marc (illegible)	[redacted]			
Kaniela Nae‘ole Na‘auao	[redacted]	[redacted]	[redacted]	

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Lokelani Intermediate School Cafeteria – 1401 Liloa Drive, Kīhei, Hawai‘i 96753

July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments (“X”)
La‘akea Webb	[redacted]	[redacted]	[redacted]	X
Katalina Nakoa	[redacted]	[redacted]	[redacted]	
Felicia Yadao	[redacted]	[redacted]	[redacted]	
Ashley Tahauri	[redacted]	[redacted]	[redacted]	X
La‘akea Joy	[redacted]	[redacted]		
Kuākea Yasak	[redacted]	[redacted]		
Courtney Lazo	[redacted]	[redacted]	[redacted]	X
Aukai Joy	[redacted]	[redacted]	[redacted]	
Tiane Lucas	[redacted]	[redacted]	[redacted]	
Kamakana Mokine Kihe		[redacted]	[redacted]	
Q. Emiko Joy	[redacted]	[redacted]		
Tyler Keonekai Rabara	[redacted]	[redacted]	[redacted]	X
		[redacted]	[redacted]	X
Lani Espinoza	[redacted]			X

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Lokelani Intermediate School Cafeteria – 1401 Liloa Drive, Kīhei, Hawai‘i 96753

July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments (“X”)
Maluhia Low	[redacted]			X
Kawai Kapuni	[redacted]	[redacted]	[redacted]	X
Chivo Ching-Johnson	[redacted]	[redacted]	[redacted]	X
Kamanao‘i‘o Gomes (Lana Idda-Gomes)	[redacted]	[redacted]	[redacted]	X
Donna Borge	[redacted]		[redacted]	
Rio Taylor	[redacted]	[redacted]	[redacted]	
Melanie Chan-Vinoray	[redacted]	[redacted]		
Ann Naeole				
Ed Joy	[redacted]	[redacted]		
Everett K. Ferreira	[redacted]	[redacted]	[redacted]	
Kaui Hill	[redacted]			X
Linda Stiles	[redacted]	[redacted]		
Hattie King	[redacted]	[redacted]		
Moriah Salado	[redacted]	[redacted]		

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Lokelani Intermediate School Cafeteria – 1401 Liloa Drive, Kīhei, Hawai‘i 96753

July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments (“X”)
Ellis Bloyer	[redacted]	[redacted]		
Leslie M. LeGaux	[redacted]	[redacted]		X
D Kaneile Joy	[redacted]	[redacted]	[redacted]	
Lala Johnson	[redacted]	[redacted]	[redacted]	
Paul Lu‘uwai	[redacted]	[redacted]		
Stacey Casil	[redacted]	[redacted]		
Emalani Kekauoha-Schultz	[redacted]	[redacted]		X
Lynn Keahi	[redacted]	[redacted]		
Kiana Keyser	[redacted]	[redacted]		
Lana Albright	[redacted]	[redacted]	[redacted]	
Wālelia Chang	[redacted]	[redacted]		
Ua Ritte	[redacted]	[redacted]	[redacted]	
Annie Provencher			[redacted]	X
Kalena Shim	[redacted]			

MĀKENA MAUKA EIS
PUBLIC SCOPING MEETING

Lokelani Intermediate School Cafeteria – 1401 Liloa Drive, Kīhei, Hawai‘i 96753

July 30, 2024 – 6:00 pm

Name	Address	Phone	Email	Please check here if you would like to provide oral comments (“X”)
Kaylee Sheller	[redacted]	[redacted]	[redacted]	
Victoria Mokiau-La‘a	[redacted]	[redacted]	[redacted]	
Urick Wolfers	[redacted]	[redacted]	[redacted]	X
Christina Delima	[redacted]	[redacted]	[redacted]	
Allison Na‘auao	[redacted]	[redacted]	-	X
Mikey Burke	[redacted]	[redacted]	[redacted]	X
Ku‘umaka Ruidas	[redacted]	[redacted]	[redacted]	
Waitford ‘Ohana	[redacted]	[redacted]	[redacted]	
Kahekili Paikala	[redacted]	[redacted]	[redacted]	
Nancy Haag	[redacted]	[redacted]	[redacted]	X
Kekane Kuloloio	[redacted]	[redacted]	[redacted]	
James Forrest	[redacted]	[redacted]	[redacted]	X
Kalele Kekauoka-Schultz	[redacted]	[redacted]	[redacted]	

APPENDIX

AC

EISPN CONSULTATION LETTER (SAMPLE)

MUNEKIYO HIRAGA
Planning. Project Management. Sustainable Solutions.

Karlynn K. Fukuda
PRESIDENT
Mark Alexander Roy AICP, LEED AP
VICE PRESIDENT
Tessa Munekiyo Ng AICP
VICE PRESIDENT

Michael T. Munekiyo AICP
FOUNDER

June 6, 2024

«First_Name__Middle_Initial» «Last_Name», «Title»
«AgencyOrganization_1»
«AgencyOrganization_2»
«Address»
«City», «State» «Zip_Code»

SUBJECT: Environmental Impact Statement Preparation Notice for the Proposed Mākena Mauka Project at TMKs (2)2-1-005:108, (2)2-1-006:036 and 057, (2)2-1-007:068, 092 and 093, (2)2-1-008:078, 079, 081, and 090, and (2)2-1-031:036 (Por.), Wailea-Mākena, Maui, Hawai'i; (EIS2024-00001)

Dear «Salutation» «Last_Name»:

On behalf of AREG AC Makena Propco LLC (doing business as Mākena Golf & Beach Club Owners), we are providing for review and comment the Environmental Impact Statement Preparation Notice (EISPN) for the Proposed Mākena Mauka Project prepared pursuant to Hawai'i Revised Statutes (HRS), Chapter 343, and Hawai'i Administrative Rules (HAR), Title 11, Chapter 200.1.

The County of Maui Department of Planning has determined that an Environmental Impact Statement (EIS) is required for the above-referenced project. The determination was made in accordance with HRS Section 343-5(e), and HAR Section 11-200.1-14(d)(2) which state that an approving agency may authorize an Applicant to prepare an EIS rather than an Environmental Assessment if, through its judgement and experience, it determines that an EIS is likely to be required.

The EISPN will be published in the June 8, 2024 edition of the Environmental Review Program's (ERP) Environmental Notice bulletin and can also be accessed through the ERP site via the links and QR code below:

Scan QR code for the EISPN or go to links provided below:

EISPN	
TINY URL:	https://tinyurl.com/MakenaMauka
QR CODE:	
Full ERP Link provided:	https://files.hawaii.gov/dbedt/erp/Doc_Library/2024-06-08-MA-EISPN-Makena-Mauka.pdf

Please note that the links will not be active prior to June 8, 2024. Should you have any problems accessing the EISPN from the links provided, please call us at (808) 244-2015.

We would appreciate receiving any comments you may have on the EISPN by no later than Monday July 8, 2024.

Please send your written comments to the following:

Accepting Authority: Maui Planning Commission
County of Maui
Department of Planning
2200 Main Street, Suite 315
Wailuku, Hawai'i 96793
Contact: Kurt Wollenhaupt
Telephone No.: (808) 270-8250
Email: planning@mauicounty.gov

AND

Applicant: Brad Anderson, Senior Director of Development
AREG AC Makena Propco LLC doing business as
Mākena Golf & Beach Club Owners
c/o Discovery Land Company
5415 Mākena Alanui Road
Wailea-Mākena, Hawai'i 96753
(808) 568-0147
Email: eis@makenagbc.com

AND

Consultant: Mark Alexander Roy, AICP
Munekiyo Hiraga
305 High Street, Suite 104
Wailuku, Hawaii 96793
(808) 244-2015
Email: planning@munekiyohiraga.com

Thank you for your participation in the HRS, Chapter 343 environmental review process.

Very truly yours,



Mark Alexander Roy, AICP
Vice President

cc: Brad Anderson, Discovery Land Company
Kurt Wollenhaupt, Department of Planning

MUNEKIYO HIRAGA

Planning. Project Management. Sustainable Solutions.